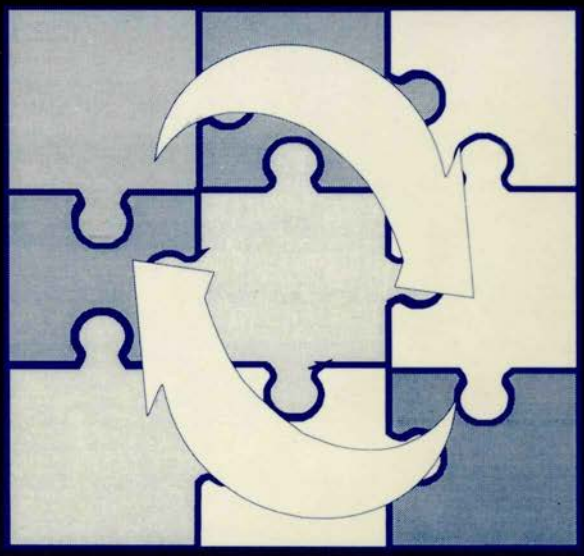
Managing Intracorporate Knowledge Sharing



Peter F. Boone

Managing Intracorporate Knowledge Sharing

Managing Intracorporate Knowledge Sharing

(Het Managen van Kennisuitwisseling binnen een Concernverband)

PROEFSCHRIFT

TER VERKRIJGING VAN DE GRAAD VAN DOCTOR
AAN DE ERASMUS UNIVERSITEIT ROTTERDAM
OP GEZAG VAN DE RECTOR MAGNIFICUS
PROF.DR P.W.C. AKKERMANS M.A.
EN VOLGENS BESLUIT VAN HET COLLEGE VOOR PROMOTIES

DE OPENBARE VERDEDIGING ZAL PLAATSVINDEN OP
DONDERDAG 5 JUNI 1997 OM 13.30 UUR

DOOR

PIETER FRANS BOONE

GEBOREN TE VLISSINGEN

Promotor : Prof.dr ing. F.A.J. van den Bosch

Overige leden : Prof.dr C.W.F. Baden-Fuller
: Prof.drs F.A. Maljers
: Prof.dr A.M. Pettigrew

Contents

Preface

During the past four years, I have often reflected upon my swimming lessons in my early youth. A very big, Santa Claus look-a-like forced me - after some practise swimming on dry land - to make a jump into the swimming pool and to start practising the things he had tried to teach me. A number of awful moments of trial and error followed which were not experienced as very pleasant. I felt totally out of control without having the idea that I would ever resurface again. A comparable feeling came to me on a regular basis during the PhD research project *"Managing Intracorporate Knowledge Sharing"* which was initiated by the Faculty of Business Administration of the Erasmus University Rotterdam in September 1993 and has been effectuated within the context of the Department of Strategic Management and Business Environment. It was due to the help of various people surrounding me that I have been able to regain my lead when I thought I lost sight of the "shore."

In specific I want to thank the following persons. Frans van den Bosch has been strongly involved in this study throughout the total duration of this research project. Apart from giving me the freedom to explore, he always supported me intellectually and offered his analytical skills to identify basic flaws in my argumentation. I would also like to thank those people of Unilever, Canon, and ITT who provided me the chance to confront my theoretical findings with the experiences and practices in actual real-life settings. All three case studies proved more than interesting and contributed strongly to the added value of this study. I am strongly indebted to Marc Huygens who has challenged my ideas and stimulated my thinking over the full four years of this research project. Marc Huygens and Raymond van Wijk went through a draft of this document and their comments are gratefully acknowledged. Finally, I want to thank Monica de Kam who enabled me to concentrate on my work and to relax when appropriate. Without her sympathy for my research endeavour, this study would have never been completed.

Rotterdam, April 1997.

Peter Boone

1 Introduction

"All over the world people struggle with problems and seek solutions. Often those who struggle are unaware that others face similar problems, and in some instances, are solving them. It is destructive and wasteful that people should be frustrated and often defeated by difficulties for which somebody else has found a remedy"

- Glaser and Marks (1966:6).

1.1 INTRODUCTION

Since the early 1990s, a growing interest exists in the concept of knowledge related to the competitive and corporate advantages that it may provide (Baden-Fuller and Pitt, 1996; Prahalad and Conner, 1996). In line with and stimulated by the growing influence of resource-based theorists in the strategic management field who stress the role that organizational capabilities, resources, and other firm-specific assets may play in a firm's strive for a competitive and corporate edge (Wernerfelt, 1984; Barney, 1991), knowledge is increasingly considered to be one of the strategic assets a firm can control (Lippman and Rumelt, 1982; Itami, 1987; Winter, 1987; Drucker, 1993). This growing interest is based on the particular traits of knowledge (e.g., not inherently scarce, not easily appropriated, and increasing returns to use) enabling firms to jump into opportunities and ward off the threats in the business environment. Distinctive learning skills based on a firm's knowledge creation and utilization capabilities are conceived as underlying the firm's ability to act in a differentiated way and to sustain and further extent above-average performance levels (Kogut and Zander, 1992; Grant, 1996a).

The "knowledge stock" of an organization, following the metaphor of Dierickx and Cool (1989), is a dynamic reservoir of skills, know-how, and experience that is replenished through a diverse set of knowledge processes. Flows of knowledge enter and leave the organization to update, rejuvenate, advance, and commercialize the firm's stock of intellectual property. The individual employee is often the main "point of entrance" for knowledge flows into an organization and these flows appear in many alternative ways (Grandstrand and Sjölander, 1990; Huber, 1991; Pisano, 1994). As depicted in Table 1.1, four knowledge procurement processes can be discerned from the position of an individual in a multi-affiliate corporation.

Such a distinction can be presented along two dimensions, being the method and the scope of the knowledge procurement process.

With respect to the first dimension, the method of procurement, a distinction is made between knowledge creation and knowledge acquisition processes. Creation is the intentional or unintentional learning which takes place through direct experience. It is what Huber (1991) calls experiential learning and comprises such activities as organizational experiments, organizational self-appraisal, and "on-the-job" learning. Apart from generating the know-how through direct experience, a manager's demand for a particular knowledge item can also be fulfilled by pulling in expertise from outside the corporation. This collection process of "second-hand" knowledge is denoted by the term acquisition here and is comparable with Cohen and Levinthal's (1990) concept of knowledge absorption and Huber's (1991) vicarious learning. The term "second-hand" points to the fact that the knowledge item acquired was already known by at least one other party, namely the knowledge donor. Knowledge acquisition processes can consist of activities like innovation diffusion, corporate and competitive intelligence, technology licensing, and best practice transfer.

The second dimension, the scope of the processes, makes a distinction between intra and intercorporate knowledge procurement processes within a multi-business firm. Intracorporate knowledge procurement processes take place within the boundaries of one corporation. The term corporation in this respect is defined as a collection of businesses or activities under common ownership. Multi-business corporations like most multinational enterprises and diversified conglomerates govern numerous companies that each have their own knowledge procurement strategy and reservoirs of valuable skills, ideas, and information. Knowledge activities shared by these subsidiaries, affiliates, business units or companies are classified as intracorporate. Intercorporate knowledge procurement processes are knowledge-related activities which go beyond the boundaries of one corporation and can be effectuated via quasi-organizational settings such as joint ventures and alliances or via contractual arrangements in the market.

So, along these basic dimensions, four generic ways can be discerned to satisfy the demands for knowledge by organizational members throughout the hierarchy (see Table 1.1), namely intracorporate experiential learning, intercorporate experiential learning, intracorporate knowledge sharing, and intercorporate knowledge sharing. Although all four knowledge

Scope of Procurement Process / *Method of Procurement*	INTRACORPORATE	INTERCORPORATE
CREATION	**INTRACORPORATE EXPERIENTIAL LEARNING**	**INTERCORPORATE EXPERIENTIAL LEARNING**
ACQUISITION	**INTRACORPORATE KNOWLEDGE SHARING**	**INTERCORPORATE KNOWLEDGE SHARING**

Table 1.1: Four Knowledge Procurement Processes for a Multi-Business Firm.

procurement processes deserve serious scientific attention, *intracorporate knowledge sharing* has been selected as the principal research topic in this research project. Intracorporate knowledge sharing as an object of study is valuable because it is often still a neglected "parenting advantage" in many multi-business enterprises. Leveraging the firm's "stock of intellectual property" can add to the viability of the corporate whole by reinforcing the competitive strategies of its various subsidiaries (e.g., Peters, 1994; Goold, Campbell, and Alexander, 1995; Ghoshal and Bartlett, 1995). Intracorporate knowledge sharing can generate savings in knowledge development expenses, contribute to the achievement of "best practice" levels, and accelerate the innovation processes of the affiliates involved.

In contrast with these practical benefits, recent academic work in the management and organizational fields tends to focus on experiential learning (e.g., Argyris, 1977; Levitt and March, 1988; Levinthal and March, 1993). Moreover, many accounts of learning organizations, as stated by Wishart, Elam, and Robey (1996: 16), "seem to emphasize exploration over exploitation" while we should aim for a more balanced body of knowledge into this issue. Although we need to acknowledge the importance of devoting energy to the exploration of new knowledge to ensure the firm's future competitiveness, it needs to be stressed that firms compete today. Earning returns on existing knowledge resources strongly adds to the firm's current viability and its competitive success in today's product markets. Management must learn to balance between the exploratory gathering of new knowledge and the exploitation of what is already known (March, 1991; Kogut and Zander, 1992). From a corporate management point of view, intracorporate knowledge sharing contributes to the exploitation objectives of the firm at large by reinforcing the knowledge exploration strategy of its affiliates.

Intracorporate knowledge sharing is defined as the initiation and effectuation of a knowledge[1] flow between two or more subsidiaries of one single enterprise. The knowledge flow, following Gupta and Govindarajan (1991: 773), could comprise expertise (e.g., skills, capabilities), market knowledge or a combination of these two. Expertise is related to input processes (e.g., purchasing skills), throughput processes (e.g., product design, process designs, packaging designs), or output processes (e.g., marketing know-how, distribution expertise). Market knowledge includes information on country or region-specific circumstances such as competitive developments and supplier proliferation which could, if leveraged appropriately to other subsidiaries, reinforce their competitive strategy. Excluded in this study are the transfers of either internal administrative information (e.g., financial data or management accounting information) and general management information. The transfer of these information items are primarily effectuated with the aim to influence the front-line managers of the affiliates on

---

[1] The words information and knowledge will be used interchangeably in this study. I have, however, tried to use information, in line with Huber (1991), when referring to data that give meaning by reducing ambiguity, equivocality, or uncertainty, or when referring to data which indicate that conditions are not as presupposed. I have tried to use knowledge when referring to more complex products of learning, such as interpretations of information, beliefs about cause-effect relationships, or, more generally, "know-how."

issues of strategic direction, resource allocation, financial planning and control, and not to increase the exploitation of the firm's knowledge exploration activities.

The decision was made to focus the research activities on the managerial role of the firm's top management. Numerous articles have been written on the managerial complexities of the intracorporate knowledge sharing process and on alternative "managerial responses" (e.g., Peters, 1994; Goold, Campbell, and Alexander, 1994; Ghoshal and Bartlett, 1995a). Only rarely, however, the tasks and responsibilities of corporate management have been systematically investigated and documented with the aim of encompassing many of the variables involved. As a consequence, a research project which is aimed to capture and structure the managerial complexity in managing intracorporate knowledge sharing seemed interesting from both a practical and scientific point of view.

A key assumption underlying this study is that the complexity of many multinational enterprises inhibits an active role for corporate management in the initiation and effectuation of knowledge flows at lower levels of the hierarchy. More and more, corporations, assisted by the developments of information technology and telecommunications, are able to disperse their activities and organizational tasks over the various subsidiaries. In this way, a knowledge network of strongly interrelated companies is established that facilitates learning and the building of an organizational capability to share knowledge on a lateral level between the different units. Which linkages will be useful at some particular point in time for a specific task between two or more subunits is unpredictable, and probably needs to be self-adjusting (Doz and Prahalad, 1991). Consequently, the main task of corporate management in the process of intracorporate knowledge sharing is an indirect one: it comprises the stimulation and facilitation of this process by taking away, reducing, and helping employees throughout the organization to overcome various obstructing or complicating barriers.

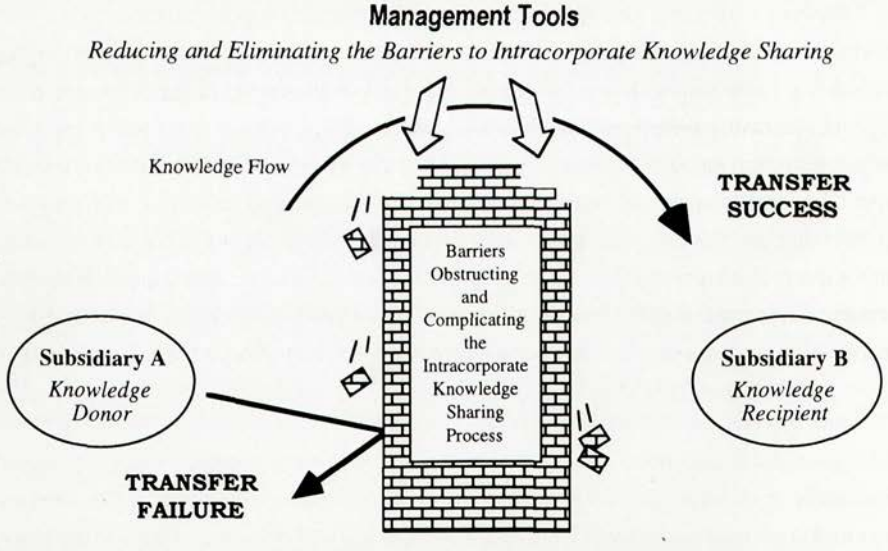


Figure 1.1: Intracorporate Knowledge Sharing.

Corporate management can effectuate its task by creating a structural context (Bower, 1970; Burgelman, 1983; Ghoshal and Bartlett, 1994) as a subtle control mechanism within which opportunities for linkages between subunits will arise at various levels in the organization at various points in time. Although a context is strongly shaped in the day-to-day interactions between the organization's managers based on the corporation's administrative heritage[2], top management of most companies has available a broad repertoire of management tools which can be effectively used in shaping the behavior of managers many levels lower in the organizational hierarchy (Prahalad and Doz, 1987). This set of corporate management tools merits academic attention and was therefore of particular interest in the development of this research project.

1.2 RESEARCH PROJECT RATIONALES

The research project "*Managing Intracorporate Knowledge Sharing - Building Unity on Diversity in a Changing European Context*" was initiated by the Faculty of Business Administration of the Erasmus University Rotterdam in September 1993 and has been effectuated within the context of the Department Strategic Management and Business Environment. Like most other research projects, this study started out with a problem of definition. A specification of this problem of definition will be given in this section by making a distinction between the research aim, the research questions, and the research method respectively.

1.2.1 Research Aim

The project *"Managing Intracorporate Knowledge Sharing"* focuses on the role of corporate management regarding the intracorporate knowledge sharing process in multinational enterprises. Notwithstanding the thought-provoking empirical evidence and hypotheses present in the scattered literature on knowledge-related issues (Hedlund, 1994; Nonaka & Takeuchi, 1995; Grant, 1996), a generic framework or an integrated set of constructs on the tasks of corporate management in stimulating and facilitating the transfer and exchange of knowledge is still lacking. In an attempt to contribute to this almost uncharted territory and to accomplish some progress in this area, this study tries to capture much of the complexity involved in the actual process of managing intracorporate knowledge sharing. It encompasses many of the relevant variables and integrates them into a generic framework, while at the same time some

---

[2] A corporation's administrative heritage is often strongly related to a firm's geographical and cultural background. The distinctiveness in background has created and institutionalized distinct structural organizational configurations, administrative processes and management mentalities which are hard to change (Bartlett and Ghoshal, 1989: 49).

preliminary propositions on the management systems that stimulate and facilitate intracorporate knowledge sharing are included. As argued by Porter (1990: 98), "Frameworks identify the relevant variables and the questions which the user must answer in order to develop conclusions tailored to a particular industry and company. [...] As long as the building of frameworks is based on in-depth empirical research, it has the potential to not only inform practice but to push the development of more rigorous theory."

The presented framework proposes a set of constructs[3] which are related to each other by preliminary propositions, bounded by the author's assumptions. The set of constructs and propositions depicted in the integrated framework enables both scientists and managers to structure their observations, invigorate their research findings, challenge their thinking, and communicate their experiences with regard to managing intracorporate knowledge sharing. Moreover, the integrated framework provides the means to effectuate a normative assessment regarding the stimulating and facilitating properties of a firm's corporate context. The manager concerned with managing the transfer of internally available knowledge items can achieve a more proper understanding of the issues involved in intracorporate knowledge sharing in a multinational enterprise.

Intracorporate knowledge sharing is difficult both to research and to manage, particularly because the circumstances surrounding the interaction between the donor, the entity who possesses the knowledge, and the recipient, the entity who receives the knowledge, differ from situation to situation, even within the boundaries of a single organization. Although it is acknowledged that the search for a universalistic theory may be inappropriate given the fundamental differences that exist across knowledge items (Downs and Mohr, 1976; Kimberly, 1981) and environments, the general notion upon which the research project has been built is that the circumstances surrounding a knowledge sharing effort are not totally idiosyncratic. The common issues related to intracorporate knowledge sharing among the geographically scattered companies of a multinational enterprise are deduced from previous research and are utilized as the groundwork on which some generic conclusions and an integrative framework are constructed.

Integrated in the research aim is the objective to study the implications of recent developments in the field of information technology and telecommunications (IT&T) on the process of intracorporate knowledge sharing. It has become apparent from the efforts of many organization and management researchers (Huber, 1990) that the nature and effectiveness of many organizational processes change when advanced information technologies are employed. Consequently, the assumption can be made that the process of intracorporate knowledge sharing will strongly be affected by new technologies such as electronic mail, video conferencing, desk-top computing, and electronic bulletin boards. Therefore, the implications of these advances in the information technology and telecommunications area fit within the domain of this research project.

---

3 Constructs, as stated by Bacharach (1989: 500), "may be defined as terms which, though not observational either directly or indirectly, may be applied or even defined on the basis of the observables."

The process of intracorporate knowledge sharing is studied in multinational enterprises operating in Europe[4]. A multinational enterprise owns, controls, and manages income-generating assets in more than one country and the inherent complexity of such a structure offers a "rich" context for empirical research on this issue. The differences between the countries constitute the main characteristic of international - as distinct from domestic - operations (Johanson and Vahle, 1977). The added dimension of different cultural, institutional, and competitive situations extends the difficulties of intracorporate knowledge sharing. The complexity of managing intracorporate knowledge sharing in the multinational enterprise, if accepted, calls for the implementation of additional management tools to enable the firm as a whole to leverage its knowledge resources over the international network of operating companies.

The rationale for limiting the research to the European operations of multinational enterprises is twofold. First, firms in Europe have a long history in managing international operations. The relative small size of many countries in Europe and the European integration process have resulted in the need for many companies to transcend fragmented, national markets to achieve a critical mass[5]. Firms have been trying to acquire and develop managerial capabilities to deal with the diversity and to exploit the knowledge resources scattered over geographically dispersed and culturally differentiated subsidiaries. The empirical observations with respect to these capabilities not only are highly relevant in a European context, but can also be applied in the analysis of firms operating in other regions in which the integration process of economic markets has just started (e.g., NAFTA, MERCOSUR, GATT). Second, the European surroundings are chosen as research context because much research on the multinational enterprise has an Anglo-Saxon background. The availability of European cases and other research material is still rather limited. By focusing on the European operations of firms, we serve the need for more European research material.

1.2.2 Research Questions

The research project "*Managing Intracorporate Knowledge Sharing*" has been strongly induced by a principal research question which, in line with the aim of this study, is: *How to manage intracorporate knowledge sharing between the internationally dispersed companies of a multinational enterprise?* For the purpose of systematic study, this question has been

---

4 In this research project, multinational enterprises in Europe embrace firms with operations in the member states of the European Union for more than 10 years. Included in this definition are corporations meeting the preceding specifications while having their home-base in a non-European country.

5 Particularly firms from smaller countries like the Netherlands, Denmark and Sweden lack the critical mass in their home country and hence have been forced to internationalize their business to be able to exploit scale economies and to built competitive cost structures.

decomposed into six subquestions. These subquestions are enlisted below, grouped under three separate headings.

I The Need for Intracorporate Knowledge Sharing in Corporate Strategy

(a) *Which knowledge items are interesting from an intracorporate knowledge sharing point of view and where do these knowledge items reside?*

(b) *How and to what extent can intracorporate knowledge sharing contribute to a firm's competitive and corporate performance?*

II The "Negative" Effects on the Intracorporate Knowledge Sharing Process

(a) *Which barriers obstruct and inhibit the initiation of intracorporate knowledge sharing efforts within an organization?*

(b) *Which barriers complicate and hinder the effectuation of intracorporate knowledge sharing initiatives within an organization?*

III The "Positive" Effects on the Intracorporate Knowledge Sharing Process

(a) *What kind of management systems could stimulate the initiation of intracorporate knowledge sharing efforts within an organization?*

(b) *What kind of management systems could facilitate the effectuation of intracorporate knowledge sharing within an organization?*

Regarding the subquestions, two remarks need to made. First, a clear distinction has been made between negative and positive factors (the "barriers" versus the "management systems") influencing the intracorporate knowledge sharing process. Both the negative and positive effects on intracorporate knowledge sharing have been widely investigated before and numerous lists of determinants can be found in the available literature. Hence the conceptual and practical challenge is not to detect any new factors affecting or fostering the intracorporate knowledge sharing process, but to make managerial sense of the number and range of possible determinants. This calls for an organizing framework that incorporates a synthesis of what we already know and a definition of what else we need to explore to come up with a managerial contribution. Instead of discussing all the factors involved in an uncohesive manner, the theoretical reasoning towards the key propositions on managing intracorporate knowledge sharing starts off with a structured review and categorization of the deterrents involved. Detecting where and how the various barriers affect the leverage of internal knowledge items enables the formulation of conclusions regarding the critical managerial responsibilities and the required management systems for stimulating and facilitating intracorporate knowledge sharing between a firm's dispersed subsidiaries.

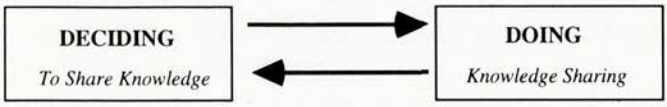


Figure 1.2: The Two Activities of a Practical Task.

Second, within the research questions listed under the latter two headings a clear and important distinction has been made between the decision to initiate and the effort to effectuate an intracorporate knowledge sharing project (see Figure 1.2). Any practical activity involves both "deciding" and "doing" or, in other words, both formulation and implementation. As a consequence, a theory of management should be concerned with the process of decision as well as with the process of action. As Simon (1976: 1) argues: "the task of 'deciding' pervades the entire administrative organization quite as much as does the task of 'doing' - indeed, it is integrally tied up with the latter. A general theory of administration must include principles of organization that will ensure correct decision-making, just as it must include principles that will insure effective action."

1.2.3 Research Method

Although having the ambition to contribute to the development of a universally applicable all encompassing theory of managing intracorporate knowledge sharing, this aspiration was baffled by the complexity of the phenomenon and the lack of a clear research history. The availability of the observations, findings, and conclusions offered by hundreds of thoughtful workers in related fields such as technology transfer, innovation diffusion, and information processing, however, provides the research project with a very useful groundwork on which an integrated framework on managing intracorporate knowledge sharing has been built. "Products of the theorizing process seldom emerge as full-blown theories," Weick (1995: 385) argues. "[...M]ost of what passes for theory in organizational studies consists of approximations." In building these approximations, however, methodological rigor has to be secured; in this respect, the construction and perfection of the managerial framework has been driven by a classical research approach including a substantial amount of both conceptual and empirical research.

The empirical research was preceded by a conceptual phase in which an attempt was made to formulate some preliminary propositions. Notwithstanding the lack of a generic framework or an integrated set of constructs on the tasks of corporate management in stimulating and facilitating the transfer and exchange of knowledge, earlier research in such research fields as technology transfer, innovation diffusion, intellectual property, strategic management,

multinational management, and organizational learning provided this study with the requisite groundwork for identifying key constructs and variables in managing intracorporate knowledge sharing. So, instead of a research approach aimed at the generation of grounded theory, the integrated framework and the related propositions have been deducted from an extensive review of the literature complemented by some early checks and pilot studies in practical settings. Subsequently, the key constructs and the proposed interrelationships between these constructs are illustrated and refined by in-depth empirical research.

Considering the empirical research part of this project, the comparative case study strategy has been applied. A case study is a history of a past or current phenomenon, drawn from multiple sources of evidence (Leonard-Barton, 1990: 249) and focuses on understanding the dynamics present within single settings (Eisenhardt, 1989). The case study strategy has been used because the focus is on a contemporary phenomenon within some real-life context (Yin, 1989). If the process of how multinational enterprises manage intracorporate knowledge sharing among their internationally dispersed companies is to be understood fully, one could not rely on a survey or an examination of archival records because the boundaries between phenomenon and context are not clearly evident yet. The existing knowledge base on managing intracorporate knowledge sharing enables us to identify key constructs and variables but still faces a lack of structure. As a consequence, conducting what in the final analysis would be a history or a case study seems to be more appropriate. The methodology applied in this research project draws strongly on the work of other researchers in the management field who have demonstrated the comparative case study approach by their own field research (Bower, 1970; Pettigrew, 1979; Bourgeois and Eisenhardt, 1988).

In specifying the population and hence the number of case study objects, the decision was made to effectuate one in-depth study of a large enterprise and a more limited inquiry within two other firms for replication purposes. The three case study corporations (i.e., Unilever, Canon Europe N.V., ITT World Directories, Inc.) have been chosen based on contextual differences. The diversity among the corporations involved brought into focus differentiated perspectives on the issue of managing intracorporate knowledge sharing and, as expected, variety in the implemented management tools[6].

1.3 STRUCTURE OF THE STUDY

This research project is an effort to acquaint the interested reader with the managerial issues surrounding intracorporate knowledge sharing within the setting of a multinational enterprise. It aims to present an integrative framework encompassing the factors negatively and positively influencing the intracorporate knowledge sharing process and allowing the observation, analysis, understanding, and normative assessment of the managerial tasks and responsibilities

---

6 In chapter 6 a more detailed explanation is given of the rationales underlying the number and selection of the case study objects, the sources of evidence, and the order of the research activities.

regarding such an organizational process. Embedded in the strategic management and international business field, the managerial framework integrates our key contributions:

- a conceptualization of the intracorporate knowledge sharing process;
- a managerial classification of the barriers to intracorporate knowledge sharing; and
- an integrated set of propositions on the management systems stimulating and facilitating intracorporate knowledge sharing.

A serious concern of the author was how to arrange the content in a way that would prove most useful to both practitioners and academics. Apart from this introductory chapter, nine chapters will follow in which the theoretical and empirical research on the role of corporate management in the process of intracorporate knowledge sharing is presented. For the theoretical part of this dissertation a caution is in order because the separation of topics in some of these chapters belie the fact that the matter of intracorporate knowledge sharing is not a neatly arranged, step-by-step process, but, rather, a mix of various factors at various stages, tailored to the situation at hand.

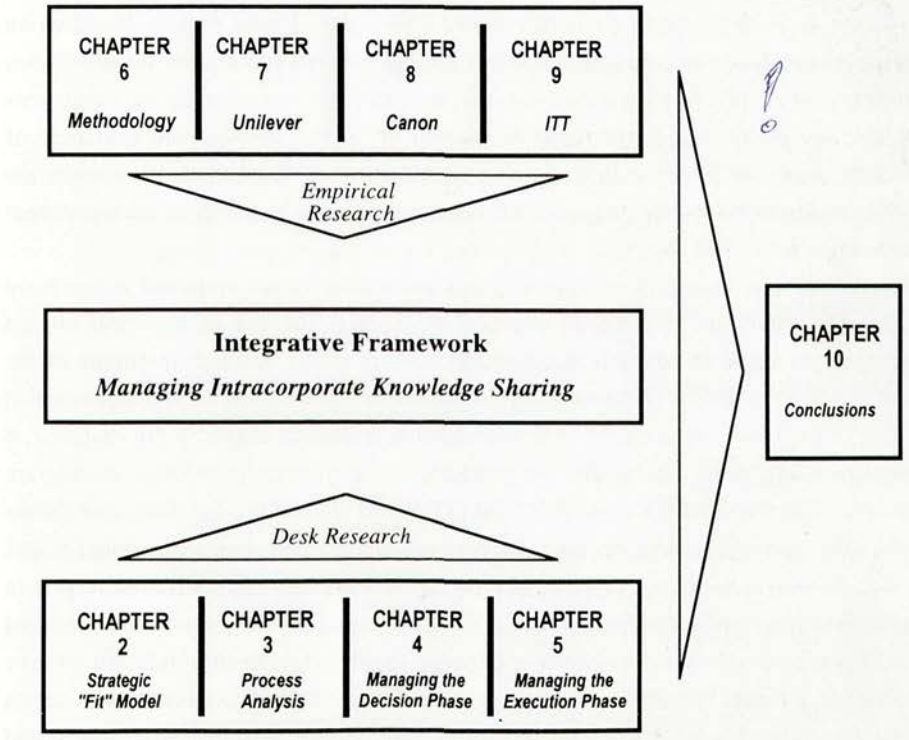


Figure 1.3: The Structure of the Thesis.

In chapter 2, after defining one of the key concepts of this research project (i.e., knowledge), the importance of the intracorporate knowledge sharing process for the survival and competitiveness of the multinational enterprise is reviewed. In search of new sources of competitive and corporate advantage, knowledge has increasingly been considered as one of the most important strategic assets a firm controls (Hedlund, 1994; Nonaka, 1994; Grant, 1996). In chapter 2 we argue how, when, and to what extent intracorporate knowledge sharing can create the groundwork on which a firm's subsidiaries can build their competitive advantage in each of their product markets. Moreover, the existing literature is reviewed on how people act and are to be managed to enlarge the actual level of intracorporate knowledge sharing in a multinational enterprise. The main conclusions of this chapter are summarized and depicted in a strategic "fit" model linking the required and actual level of intracorporate knowledge sharing.

Chapter 3 presents a conception of the intracorporate knowledge sharing process which is grounded in a communication approach. The process analysis contributes to our objective to bring some kind of managerial order in the theoretical and empirical research on this issue. Subsequently, chapter 4 and 5 elaborate on the numerous barriers affecting the initiation and effectuation of knowledge transfer efforts and the management systems which could and should be implemented by corporate management in their responsibility to create a "fit" between the required and actual level of intracorporate knowledge sharing. In chapter 4 we focus on the decision to initiate an intracorporate knowledge sharing project. Based on an enumeration, categorization, and evaluation of the barriers obstructing the initiation, two propositions are explicated regarding the management systems stimulating employees throughout the multinational enterprise to participate in the transfer and exchange of knowledge. In chapter 5, the factors affecting the effectuation of a knowledge transfer are exhibited and discussed and the prerequisite management systems to reduce or eliminate them are proposed.

From chapter 6 to chapter 9 the approach and the findings of the empirical research are described. An important element of scientific research is the use of a careful chosen methodology to arrive at scientific accountable answers to the research questions of the research project (Yin, 1989). This means that the sources of evidence and the techniques which are used to collect the evidence need to be explicated as is done in chapter 6. In chapter 7, 8 and 9 respectively, three case studies on managing intracorporate knowledge sharing are documented: Unilever, Canon Europe N.V., and ITT World Directories, Inc. Each case differs from the other cases in several aspects of its organization (e.g., the parent's regional home-base, size, industry) and in the prevailing perspective and management tools with respect to managing intracorporate knowledge sharing. The most in-depth investigation was executed within the Unilever Corporation: here, a detailed analysis has been conducted of five implemented management tools and comparisons were drawn between divisions (Foods versus Personal Products), product categories (e.g. ice cream, frozen products, margarine), and functions (IT, Marketing and Sales). The case on the Canon Europe organization shows the

challenges for a company when confronted with a transition from a focus on leveraging technological excellence to an emphasis on the cross-fertilization between its firm-specific expertise and market-specific information. The ITT World Directories, Inc. case describes the problems of being confronted with a changing business environment and the subsequent complexities of the necessary transformation process to upgrade the firm's abilities in managing intracorporate knowledge sharing.

In the final chapter, the main conclusions are enlisted based on a confrontation between the desk research and the empirical research as presented in Figure 1.3. Some critical notes to put the research project in its appropriate context and suggestions for further research are presented in this document's final pages.

2

The Need for Intracorporate Knowledge Sharing in Corporate Strategy

Toward a Strategic "Fit" Model

"Leveraging an organization's institutional knowledge in today's business environment is not simply a business advantage; it is a business imperative. Those companies that develop best practices for managing knowledge capital will be the ones that ride this competitive wave."

- R.J. Hiebeler (1996: 22).

2.1 INTRODUCTION

Multinational enterprises, the objects of study in this research project, are very visible and important features of the world economy as they generate a significant part of global production and employ a large fraction of the world's workforce. Their economic logic has been studied, both empirically and theoretically, by many academics and in the previous three decades we have seen great advances in this respect. In the field of International Business (e.g., Hymer, 1960, 1967; Kindleberger, 1970, Dunning, 1980), for example, reasonable accounts were introduced extending and complementing the traditional macro-economic arguments for the activities of multinational enterprises. In general, the research activities focused on such questions as: Why do multinational enterprises decide to internalize certain activities which could also be left over to the market? What is the reason that firms conduct some but not all operations abroad? and What is the enabling factor to compete in local markets with both indigenous and other multinational firms?

Particularly the last question is of interest in exploring the practical relevance of the intracorporate knowledge sharing process to the survival and competitiveness of the multinational enterprise because this question is not directly concerned with the managerial choices regarding diversification and internationalization, but with the ability of the firm to survive in a foreign market environment once these managerial choices have been made. Corporations can be very strongly motivated to seek an internationalization strategy and

perceive many locational advantages of investing in foreign markets. If the subsidiaries of a multinational enterprise, however, lack distinctive advantages relative to their local competitors or do not control sufficient ways to sustain their competitive edge, this strategy will not succeed and will lead, at least in the longer term, to an unprofitable operation (Dunning, 1988). An internationalization strategy cannot succeed unless the corporate "umbrella" adds value to the multinational enterprise's subsidiaries by providing benefits that can offset the inherent costs of not-being an independent local firm and score off the potential corporate advantages provided by other corporations. Intracorporate knowledge sharing, as argued in this chapter, can lead to a multitude of such business benefits, including faster product and process innovation, reduced duplication of development efforts, and pro-active competitive moves (Hiebeler, 1996).

Hymer (1960, 1967) calls the multinational's distinctive benefits owned over and above those possessed by indigenous competitors monopolistic advantages and presents the corporation's property rights, skills, and expertise as important examples. Hymer and numerous subsequent authors argue (e.g., Buckley and Casson, 1976; Dunning, 1980; Rugman, 1981) that knowledge advantages such as access to product and process innovations, production skills, and marketing experience have enabled many affiliates of multinationals to compete in markets abroad. Internalizing markets for the transfer of these knowledge advantages reinforce the competitive strategy of the corporation's business units. Moreover, those companies that are able to develop best practice for spreading and leveraging available knowledge over their network of affiliates can outperform other corporations in managing "knowledge capital." These firms will be the ones that have more chance to dictate their collection of competitive markets and create not only distinctive, but also sustainable competitive advantages in their product-markets throughout the world (Galbraith and Kay, 1986; Kogut and Zander, 1992).

Although there is still little theoretical and empirical convergence on the antecedents of corporate success to date, existing perspectives in the fields of international business and strategic management are reviewed in this chapter to deduce some ideas on the importance of intracorporate knowledge sharing for the survival and competitiveness of the multinational enterprise. We will argue why, how, when, and to what extent intracorporate knowledge sharing can be an important foundation on which a firm's subsidiaries can build their competitive advantage in each of their product markets. Moreover, anchored to the achievement and sustainability of competitive and corporate advantage, a strategic "fit" model is developed linking the required and actual level of intracorporate knowledge sharing. The strategic "fit" model embeds the managerial framework, as presented in the following chapters, in the strategic management and international business literature.

Before we elaborate on the competitive and corporate relevance of the intracorporate knowledge sharing process, however, the central concept of this research project, knowledge, requires some further clarification. Without knowing the particular traits and "faces" of knowledge in an organization, a clear discussion on intracorporate knowledge sharing will not

be possible. Therefore, section 2.2 will address a managerial inquiry of the meaning of knowledge to the organizational field. Subsequently, section 2.3 presents the contingencies determining the intracorporate knowledge sharing requirements, while section 2.4 focuses on how people act and are to be managed to enlarge the actual level of intracorporate knowledge sharing.

2.2 A MANAGERIAL INQUIRY INTO THE CONCEPT OF KNOWLEDGE

Many have argued that the most prosperous economies in the world are gradually turning into information or knowledge societies (Naisbitt and Aburdene, 1986; Toffler, 1990). A society is emerging in which, as argued by Drucker (1993: 94), "the real and controlling resource and absolutely decisive factor of production is neither capital nor land nor labor. It is knowledge." The knowledge concept itself, however, is often defined in loose terms and still surrounded with a lot of ambiguity. Knowledge, as argued by Wikström and Normann (1994: 9), is "not the homogeneous or clearly defined concept which the current debate on its role in the post-industrial information society might seem to imply." Hence it seems reasonable to commence this study on managing intracorporate knowledge sharing with a brief elaboration on the concept of knowledge and its various "faces" in an organizational context. This enables us to discern distinct knowledge items that are relevant to the intracorporate knowledge sharing process.

2.2.1 The Origins and Definitions of Knowledge

People concerned with the development of a theory of knowledge are called epistemologists and the branch of philosophy that is concerned with knowledge-related issues is epistemology (In Greek the word "episteme" means knowledge, while "logos" stands for theory). For the beginning of the epistemological discussion we need to go back to the 5th century B.C. to a leading Greek sophist of that time called Gorgias. Gorgias argued that nothing really exists, that if anything did exist it could not be known, and that if knowledge was possible, it could not be communicated. With these penetrating thoughts, epistemology as a separate field of study emerged and during many years famous philosophers like Plato, Aristoteles, Descartes, Spinoza, Locke, Kant, and Wittgenstein have contributed to its development. The main issues discussed within the confines of this discipline include the definition of knowledge, the sources and criteria of knowledge, the kinds of knowledge possible and the degree to which each of these types is certain, and the exact relation between the one who knows and the object known.

What is knowledge? Contemporary analysis of the knowledge concept shows a common understanding of knowledge as a "justified true belief," a concept that was first introduced by

Plato in his *Meno, Phaedo, and Theaetetus* (Nonaka, 1995). Knowledge is a special type of belief - a belief we have reason to have, and that we can be sure about. It serves to define expected relationships, behaviors, and actions (Lyles and Schwenk, 1992) and hence is also the belief in a solution for a particular problem. Knowledge is stored in memory in that it can be brought to bear on present or future decisions and problem-solving activities. In this respect, knowledge can be considered as "decisional stimuli and responses that are preserved in particular storage bins and that have behavioural consequences when retrieved" (Walsh and Ungson, 1991: 61).

Although the definition above may imply that a clear epistemological tradition exists, in reality the epistemological field is still in its developmental stages. In Western philosophy there are two great epistemological traditions, namely the rationalists and the empiricists. The rationalists stress deductive reasoning based on self-evident principles as the main source and final test of knowledge, while the empiricists argue that all knowledge is derived from experience, either experience of the external world or from internal experience, in which the mind reflects on its own activities. In Asian philosophy the mutually complementary of mind and body is emphasized instead of focusing on the dominance of one of them (Nonaka, 1995). An interactive relationship exists between human beings and the world by means of human action, experiment, and experience, a perspective which can also be found in pragmatism, an American philosophical tradition.

The world's greatest thinkers have been intrigued by the philosophical discussion but have not been able to achieve a kind of consensus on what is knowledge (Grant, 1996). What constitutes a good picture of reality in philosophical terms, however, is from a managerial point of view probably even not so important. The philosophical discussion can be sidestepped by explicating when a knowledge item becomes interesting from an intracorporate knowledge sharing point of view and value creation seems to be the "casting vote" in this respect (Grant, 1996: 110). As Penrose (1959: 76) argues: "More services become available, previously unused services become employed and employed services become unused as knowledge increases about the physical characteristics of resources, about ways of using them, or about products it would be profitable to use them for." Value is created if beliefs or behavioral patterns increase the gap between the value of a firm's inputs and outputs. Beliefs and behavioral patterns that have proved on a consistent basis to add value to a practical setting are of interest to the intracorporate knowledge sharing process in a multinational enterprise. Whether the knowledge can also be conceived as knowledge in philosophical terms is then, from a managerial point of view, not relevant any longer.

2.2.2 A Typology of Knowledge

In the economic and strategic management field, few have systematically and seriously addressed the nature of knowledge till recently. Information processing was used by theorists as Thompson (1967), Galbraith (1973, 1977), and Egelhof (1982) as a framework for

describing and better understanding critical fits between the business environment and the organization. Information, in this respect, served as inputs to decision-making and problem solving (e.g., Daft and Macintosh, 1981; Galbraith, 1977; March and Simon, 1958). Information in the information processing model was seen as a valuable resource, but a resource which was not considered as significantly different from the other production factors. The information-processing paradigm emphasizes the quantity of information instead of its quality (Nonaka, 1988a). Information was formalized as abstract, task-specific and oriented towards problem solving and hence the less explicit knowledge like the "behavioral knowledge" discussed by Barnard (1938), the "tacit knowledge" emphasized by Polanyi (1966), the "subjective knowledge" described by Popper (1972), and the "embedded knowledge" distinguished by Badaracco (1991) were totally disregarded.

Knowledge can have many more faces than the abstract, task-specific knowledge as assumed by the information processing theorists (Blackler, 1995; Spender, 1996). Although many distinctions can be made, a useful typology of knowledge items can be made along two dimensions, being knowledge nature and knowledge level (see Table 2.1). The knowledge nature dimension ranges from fully articulatable or explicit knowledge to highly tacit knowledge (Polanyi, 1958). *Explicit knowledge* is the structured knowledge which is specified either verbally or in writing, computer programs, patents, drawings or the like. Explicit knowledge is easily transmittable and can be stored in registers, libraries, and documentation (e.g., customer and product files). With respect to explicit knowledge, the concepts of data and information are often used to illustrate its nature. Data is the raw material that comes directly from sensors (Martin and Powell, 1992; Bohn, 1994). Data on its own can serve little useful purpose, but by processing it one gets information. Information is structured data which gives relationships between data elements by data processing (e.g., sorting, comparing, condensing). Information can be a major input in managerial decision-making. *Tacit knowledge*, in contrast, is hard to verbalize as it is strongly interrelated with the "carrier" of the knowledge. It is difficult or impossible to be conveyed linguistically or in writing. Tacit knowledge is often hard to get at because it resides in people's heads and it is less well registered. Tacit

KNOWLEDGE NATURE	Individual	Group	Organization	Interorganization
Explicit Knowledge	Facts	Who knows what	Profit Accounting data Formal & Informal structure	Prices Whom to contact Who has what
Tacit Knowledge	Skills of how to communicate Problem solving	Recipes of organizing and coordinating	Higher-order organizing principles of how to coordinate groups and transfer knowledge	How to cooperate How to sell and buy

KNOWLEDGE LEVEL

Adapted from Kogut & Zander (1992) and Hedlund & Nonaka (1993)

Table 2.1: Typology of Knowledge

knowledge, however, comprises critical "impulses" for organizational behavior and hence has a major impact on the firm's performance. Polyani (1958) uses the concepts of skill and connoisseurship to illustrate the nature of tacit knowledge.

The second dimension, the knowledge level, indicates the organizational level at which knowledge resides. Based on Kogut and Zander (1992: 388) and Hedlund and Nonaka (1993: 119), a distinction has been made between four different levels of carriers, or donors, of knowledge: the individual, the group (e.g., department, team), the organization, and the interorganizational domain. In a strict sense, knowledge resides only at the individual level or, as Simon (1991: 124) states, "all learning takes place within individual human heads." Without the individuals, no organizational knowledge can ever exist. However, each individual is part of one or more social structures. A social structure comprises a network of roles and relationships in which interpretations of problems and solutions are shared. The thread of coherence that characterizes group, business unit or corporate interpretations is made possible by the sharing of interpretations. Through this process of sharing, the interpretation system in part transcends the individual level (Walsh and Ungson, 1991: 61). In that respect, the notions of routines (Nelson and Winter, 1982), invisible assets (Itami, 1987), capabilities (Teece, Pisano and Shuen, 1994), and competences (Prahalad and Hamel, 1990) are often mentioned as typical forms of knowledge which are created if behaviors between two or more parties are repeated over time to the point where those behaviors are taken for granted or expected. Knowledge transcends in these situations the level of the individual and resides at the group, organization, or interorganizational level.

If intracorporate knowledge sharing could be brought back to the distribution of data written down in some company reports, then the management task of corporate management in this respect could be limited and reduced to the composition of some key management distribution lists. Knowledge, however, as we have tried to show in this section, is much more than the abstract, task-specific knowledge as assumed by many academics in the past. Knowledge resides unstructured throughout the corporation on various levels of the organization and is stored in many forms and various degrees of tacitness. Consequently, utilizing this reservoir of knowledge requires much more than technology-oriented solutions like the roll-out of a highly advanced system of networked computers. Managing intracorporate knowledge sharing in an efficient and effective way requires an acknowledgement of the diversity inherent in the firm's knowledge and an understanding of how this diversity will affect the leverage potential of a firm's reservoir of prevalent knowledge items.

2.3 CORPORATE STRATEGY AND THE QUEST TO LEVERAGE KNOWLEDGE

Knowledge, as assumed by many academics today, is a key resource in a firm's strive for competitive and corporate advantage. Strategic management theorists working in the field of research concerned with the competitive and corporate advantages that knowledge may

provide for organizations, argue increasingly that a development of a better understanding of the organization as a knowledge system is needed (Von Krogh et al, 1995; Grant, 1996b). "The central competitive dimension of what firms know how to do is," as argued by Kogut and Zander (1992: 384), "to create and transfer knowledge efficiently within an organizational context." Building on the elaboration regarding the general characteristics of the knowledge concept in the previous section, this section places particular emphasis on the role of knowledge in an organization's value added activities and the contribution knowledge can make to a firm's performance.

Strategic management is a relatively "young" field of academic research which is still strongly in transition (Van den Bosch, 1993). Strategy, the key concept in this field, has been defined in the past as the formulation of long-term goals and the major policies and plans for achieving these goals (Chandler, 1962; Learned, Christensen, Andrews and Guth, 1969; Andrews, 1971) or as the match an organization achieves with its environment (Hofer and Schendel, 1978; Henderson, 1979). More recently, the pursuit by a firm and its management of competitive advantage (Teece, Pisano and Shuen, 1994) has been added to these definitions that each describe a particular element within the strategy concept. As stated by Hax (1990), providing a simple definition of strategy is not easy because some elements of strategy have universal validity and thus can be applied in any situation, while other elements are heavily dependent on the nature of the firm, its constituencies, its structure, and its culture.

From a managerial perspective, a well-defined strategy takes into respect both the organization and its business environment, both the formulation and effectuation of goals, and both the achievement and sustainability of competitive advantage. Strategy can be formulated within various settings (e.g., functions, teams, units, multinational enterprises) and at various levels in the organization. Within a multi-business corporation a distinction is often made between competitive strategy and corporate strategy. Competitive strategy is concerned with the creation or exploitation of those advantages that are most telling, enduring, and most difficult to duplicate in one specific business (Rumelt, 1980). Corporate strategy, instead, is concerned with what makes the corporate whole add up to more than the sum of its business unit parts (Porter, 1987; Goold, Campbell and Alexander, 1994) and focuses on the scope and management of the portfolio of business units (Johnson and Scholes, 1988; Goold and Luchs, 1993). In other words, corporate strategy concerns two questions: what businesses the corporation should be in or out and how the corporate office should manage the array of business units.

Intracorporate knowledge sharing can be an important "parenting advantage" for a multi-business corporation (Goold et al., 1994). Leveraging the "stock of intellectual property" can add to the justification of the corporate whole by reinforcing the competitive strategies of its subsidiaries. Owing to the fact that many "traditional" sources of corporate advantage like operational and financial synergy have become less attractive or evaporated, many diversified corporations have fundamentally rethought their corporate strategies since the late 1980s. The leverage of resources in general and of knowledge in particular have increasingly been

discerned as an important parenting advantage by many academics (e.g., Bartlett and Ghoshal, 1989; Prahalad and Hamel). David Whitman, CEO of Whirlpool, states in this respect (Maruca, 1994): "The only way to gain lasting competitive advantage is to leverage your capabilities around the world so that the company as a whole is greater than the sum of its parts. [...] To me, competitive advantage means having the best technologies and processes for designing, manufacturing, selling, and servicing your products at the lowest possible costs. Our vision of Whirlpool is to integrate our geographical businesses wherever possible [...] take the best capabilities we have and leverage them in all of our operations worldwide."

In search of alternative sources for adding value to the corporate whole, however, each and every corporate strategy needs to adhere to certain premises which, as Porter (1987: 46) argues, "cannot be altered, and when ignored, [...] explain in part why so many corporate strategies fail." Porter (1987) postulates three prerequisite demands put upon a corporate strategy. The first one is that competition occurs in the markets in which only the firm's subsidiaries are active. Competition and the decision on the "life and death" of the corporation occurs at the business unit level. Not the diversified corporations, but their affiliates compete in product markets. Consequently, corporate strategy must place primary attention on nurturing the success of each unit. The corporate center must get a clear notion how value can be created for their business units, directly or by providing advantages which could reinforce the competitive strategy of their business units. Corporate strategy can only be successful as primary attention is placed on the competitiveness of its business units. Successful corporate strategy adds to the creation and sustainability of the competitive advantage of its business units. Successful corporate strategy must, as argued by Porter (1987: 46), "grow out of and reinforce competitive strategy."

The second premise which corporate planners need to respect is that diversification inevitably adds costs and constrains to a firm's business units. Besides the headquarters' overhead costs (e.g., manpower, travel expenses), the subsidiaries create costs in their attempt to conform to the procedures for operational and strategic planning, capital appropriations, annual budgeting, and monthly reporting. Moreover, opportunity costs and motivational problems exist due to the reduced autonomy caused by the formal procedures to which every manager within the corporate whole needs to adhere. Although these costs and constraints can never be totally eliminated, corporate management must acknowledge their existence. Without regaining these "corporate costs" in any kind of way, a firm's top management has to admit that the corporate "umbrella" loses its justification.

Finally, Porter argues that corporate managers must recognize that shareholders can better diversify themselves by building a portfolio of investments which best match their own preferences and risk profiles. Although executives based on general portfolio theory (Markowitz, 1952, 1959; Sharpe, 1963, 1970) frequently still justify a diversification move by claiming that it reduces a firm's exposure to cyclical and secular uncertainties or risk (Fox and Hamilton, 1994; Lubatkin and Chatterjee, 1994), a more efficient and effective capital market has led to the ability of shareholders to diversify themselves more cheaply and effectively.

Apart from the avoidance of hefty acquisition premiums, individual shareholders don't impose the corporate costs and constraints on their investments. Moreover, as Coffee (1988: 90) argues, "... given the continuing search for stocks to fill specific niches in a portfolio, investors would rationally tend to disinvest in broadly diversified conglomerates."

Based on these three premises it is reasonable to conclude that corporate strategy can only succeed if it really adds value to its subsidiaries and hence if it generates value for a firm's shareholders. Investors can form the same portfolio of investments as a firm but the firm's distinct way of managing this portfolio must make the fundamental difference and justify the existence of the corporate whole. Corporate value needs to be created, directly or indirectly, to offset the inherent costs of lost independence and intracorporate knowledge sharing could play an important role in this respect. However, corporate strategy should never be formulated and implemented without serious regard for the competitive strategies of the subsidiaries it tries to govern or otherwise corporate value will be very difficult to generate. Consequently, an elaboration on the importance of managing intracorporate knowledge sharing in corporate strategy needs to commence with a review of those theories elucidating on the sources of competitive advantage and the role knowledge can "play" in this respect.

2.3.1 Competitive Advantage within a Knowledge-Based View of the Firm

Historically, economists have not been strongly interested in and convinced of the role and influence of the firm and its managers on the outcome of the market processes. For example, neo-classical perfect competition theorists, those whose line of intellectual descent can be traced from Smith through Walras, were primarily concerned with constructing equilibrium theories of price based upon the interaction of supply and demand and upon the assumption of rational behavior by the firm's actors. Firms, from the perspective of perfect competition theorists, are identical because perfect information together with a specifiable production function assure that each firm has equal access to product technology; perfect information plus resource mobility and divisibility assures that each firm is able to obtain exactly the right inputs (Conner, 1991). Thus, the individual firm's ambition to maximize profits yields a market equilibrium of zero economic returns to each firm, because they are equally able to team the inputs of labor and capital.

During the past decades various academics have challenged the structural pillars of the perfect competition model and identified different roles for managers in their strive for competitive advantage. Industrial and evolutionary economists have questioned the assumptions that, on the long term, firms yield zero economic returns. The way these theorists have analyzed and compared companies and industries in their pursuit of competitive advantage, however, varies strongly. Roughly speaking, two extremes, the "outside-in" and "inside-out" approach, can be distinguished which differ in their emphasis placed on the role of the firm and its environment in creating a competitive advantage.

Strongly based on the work of industrial economists like Mason (1939) and Bain (1968), the outside-in approach primarily attends to the environmental conditions and their implications for the success of competitive strategy. Porter (1980, 1985), the most well-known contributor to the development of this perspective, made the outside-in approach dominating the strategic management field until the beginning of the 1990s. The essence of strategic management in the structuralist framework is to shield the firm, to the maximum extent legally possible, from competitive forces (e.g., rivalry among existing firms, threat of new entrants, threat of substitute products, bargaining power of suppliers, bargaining power of buyers). As Porter (1980: 4) formulates it, "The goal of competitive strategy for a business unit in an industry is to find a position in the industry where the company can best defend itself against these competitive forces or can influence them in its favor." Based on collected information, firms seek monopoly power in order to control the economic rents, often called monopoly rents of their activities. Although the resource endowments of companies are homogeneous and companies are not able to direct the market processes, the company as an output-restrainer (Conner, 1991) controls, although to a very limited extent, its own success by being well informed.

At the end of the 1980s and beginning of the 1990s, however, more and more strategic management theorists began to question the deterministic nature of the business environment as assumed by Porter and his colleagues and the limited attention they directed to the firm's management in the achievement of competitive advantage. Under the banner of the resource-based view of the firm, more and more authors started to argue that, at least in the long run, a firm's bundle of resources is more important than the deployment of these resources through particular product-market combinations (Rumelt, 1984, 1987; Barney, 1986; Dierickx and Cool, 1989; Conner, 1991; Mahoney and Pandian, 1992). Although the influence of the business environment on the firm is not denied, these theorists argue that firms are heterogeneous in nature which was not assumed by the industrial economists (Rumelt, 1991; Baden-Fuller and Stopford, 1994). Based on some early very influential works (Selznick, 1957; Penrose, 1959; Nelson and Winter, 1982), this inside-out approach was reinvented as an important paradigm in studying the distinctiveness and sustainability of the firm's competitiveness.

In explaining performance differences among firms within this resource-based approach (Wernerfelt, 1984), distinctiveness in product offerings or low costs are tied directly to the distinctiveness in input resources. In contrast to perfect competition and Industrial Organization economists, resource-based theorists discern resources which are not completely mobile and divisible and hence flow unimpeded to the highest-valuing use (Dierickx and Cool, 1989). Peteraf (1993: 182) concludes: "What distinguishes monopoly profits from Ricardian rents is that monopoly profits result from a deliberate restriction of output rather than an inherent scarcity of resource supply." In resource-based theories, the firm is a seeker of unique, or otherwise costly-to-copy, inputs. In resource-based strategies, opportunities to undertake

rent-generating projects or activities ultimately rely upon the control of scarce resources (Barney, 1986a; Rumelt, 1987).

Related to this particular resource-based view of the firm and stemming from the same dissatisfaction with the leading explanations of the firm's competitive success in the strategic management field, a more dynamic variant of the inside-out approach was gradually developed in the early 1990s, strongly based on the work of Marshall and Schumpeter (1934, 1942). The contributions to this dynamic perspective on the firm's competitive success reflects the dissatisfaction with the static, equilibrium framework of considering the firm as an independent actor of market forces (Pettigrew and Whipp, 1993; Teece, Pisano and Shuen, 1994, 1997). Competition is not static, these theorists argue, but is continuously changing. The economy is never in equilibrium because of the continuous process of innovation (Nelson and Winter, 1982). The firm is not a dependent actor of the market processes, but consciously tries to direct these processes by innovation to disrupt market equilibria. Entrepreneurial rents, these theorists argue, can be achieved by challenging the established competitive rules based on the entrepreneurial capabilities possessed by firms to address and proactively direct these changing circumstances.

Identifying that a uniform model of competition in strategic management, as depicted in Table 2.2, is still far away (Reve, 1990; Hamel and Heene, 1994), one can conclude that, as we know today, firms can decide the competitive "battle" in three ways (Spender, 1996): on their market positioning and shielding from competitive forces, on the distinctive and difficult to replicate resources which they posses, and on their capability to learn and innovate more effectively than their competitors. Noticing this fragmented but complementary state of the field, some authors pose that more coherence in strategic management theory could be achieved by recognizing knowledge as a central element for competitive success (Itami, 1987; Kogut and Zander, 1992; Grant, 1996; Conner and Prahalad, 1996). Without selecting the most preferable source of competitive advantage which is, as assumed by the author, contingent on a complex set of variables, a knowledge-based view seems attractive because everything that describes a firm's competitive strategy is an aspect of its available knowledge. A knowledge-based view has the potential to provide the strategic management field with a consistent basis for explaining performance differences between competing firms. Within a knowledge-based view, management's performance regarding the creation, procurement, analysis, combination,

	Monopoly Rents	*Ricardian Rents*	*Entrepreneurial Rents*
Strategic Objective	Restricting competitive forces	Exploit firm-specific resources	Innovation, seek market disequilibrium
Market Perspective	Static	Static	Dynamic, influence of the firm on the market process
Resource Perpective	Homogeneous	Heterogeneous	Heterogeneous

Table 2.2: Differences in Perspectives in the Strategic Management Field.

and application of knowledge is seen as one of the key competitive dimensions in a firm's strategy.

An organization, in Kogut and Zander's terms, serves as a mechanism by which new knowledge is created and current knowledge replicated (see Figure 2.1). Both exploration and exploitation in an organization, however, are strongly interlinked and cannot be characterized as independent of each other. To explore this dynamic aspect, Kogut and Zander (1991: 384) introduce the concept of combinative capability to synthesize and apply current and new knowledge and to direct investments in those assets that correspond to a combination of current capabilities and expectations regarding future opportunities. By transforming knowledge into the marketplace as products and services, available knowledge is commercialized (Kozmetsky, 1990). The organizing principles underlying the creation, replication, and application of the firm's stock of knowledge "open a window on understanding these combinative capabilities as a set of 'inert' resources that are difficult to imitate and redeploy" (Kogut and Zander, 1991: 385) and as the basic source of a firm's competitive advantage.

Knowledge items can be categorized in numerous ways. The knowledge environment grid, as depicted in Figure 2.2, complements the distinction in Table 2.1 in that it brings into the discussion an additional differentiation between two kinds of knowledge which play a significant role in a firm's competitive strategy, being expertise and market knowledge (Gupta and Govindarajan, 1991). *Expertise* , on the one hand, is the firm's craftsmanship often referred to as skills, capabilities, and competences. Expertise could be related, as described before, to input processes, throughput processes, or output processes. It is the knowledge underlying the firm's ability to produce and market the products of today and to generate the product and process innovations to create the product offerings for tomorrow. *Market knowledge*, on the other hand, is the firm's information on and understanding of the circumstances and developments in a particular marketplace (e.g., customer demands, strategy of competitors,

Adapted from Kogut & Zander (1992: 385).

Figure 2.1: The Organization as a Knowledge System.

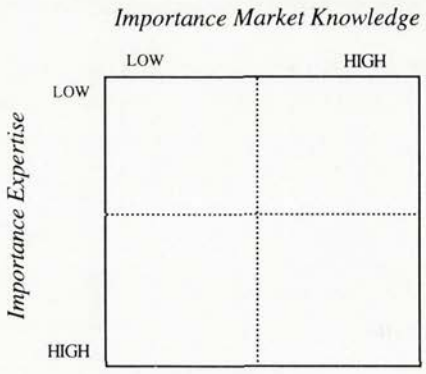
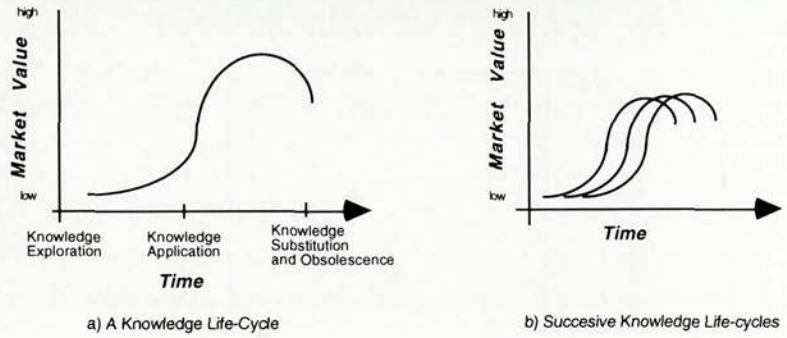


Figure 2.2: The Knowledge Environment Grid.

supplier proliferation). Market knowledge is the knowledge underlying the firm's ability to customize and adapt the products and operations to the market needs and demands. Only by understanding where to apply the expertise that will make a difference in the minds of both customers, intermediaries, and other stakeholders, one can hope to be able to commercialize the firm's knowledge reservoir.

Commercialization requires the active integration of expertise and market knowledge and hence the firm's combinative capabilities must achieve a cross-fertilization between them. The importance of both expertise and market knowledge, however, can differ strongly between firms. Based on such determinants as the industry in which the firm competes, the selected source of competitive advantage, and particular product characteristics, firms vary in the weight given to both types of knowledge and hence occupy different positions on the knowledge environment grid. Industries, for example, in which firms strongly compete on their ability to create, collect, and apply expertise are the computer, chemicals, consumer electronics, copier, and car sector which are characterized by relatively high levels of R&D expenditures and the control over a large number of patents. Firms putting major emphasis on their ability to collect and aggregate market information are often located in such industries as the foods, cosmetics, leisure, and recreation sector. Firms in these industries are more dependent on their adaptation to specific market needs and are often characterized by relatively high marketing budgets and strongly decentralized business operations.

Notwithstanding the differences in knowledge environment, the knowledge management abilities of many firms are challenged by knowledge life cycles, as depicted in Figure 2.4, which are dramatically speeded up since the early 1990s (Berry and Taggart, 1994). A knowledge life cycle starts with an invention and ends with the knowledge item becoming obsolete (Schon, 1971). Caused by such phenomena as innovation, imitation and shifting customer preferences nowadays, knowledge depreciates very rapidly (Argote, Beckman, and Epple, 1990). New knowledge life cycles arise quickly (see Figure 2.3b), affecting the market value of existing knowledge and forcing companies to invest in the pursuit of new knowledge



Adapted from Schon (1971)

Figure 2.3: The Knowledge Life-Cycle.

(Perrino and Tipping, 1989). The competitive success of firms becomes increasingly dependent on their ability to upgrade their internal "stock of intellectual capital" and hence to learn faster than their competitors (De Geus, 1988).

Concluding, we can state that it is reasonable to assume that knowledge plays an ever-increasing important part in a firm's strive for competitive success. Although firm's differ regarding their position on the knowledge environment grid and hence put a different value on expertise and market knowledge, the reinforcement of knowledge procurement processes becomes an almost universal business objective. Intracorporate knowledge sharing, if managed appropriately, is an effective and cost efficient way for a subsidiary to procure the requisite knowledge items. Moreover, as will be discussed in the next section, it is one of the few ways in which the corporate "umbrella" can add value to its business units and hence justify the existence of the corporate whole.

2.3.2 Corporate Strategy from a Knowledge-based Perspective

Academic research indicates that corporate strategies have not been so successful in recent years and that many multi-business corporations are nothing more or less than the sum of their affiliates (Goold, Campbell, and Alexander, 1994). Still too often the drive for growth simply reflects the desire of boards to insulate themselves from the risk inherent in any individual business or the quest for power over more and more people and assets as an end in itself (Schenk, 1990). Building upon the conclusions of the previous section and the discussion on how, whether and when the subsidiary is better off as part of a larger corporation rather than being an independent entity, we argue in this section that the process of intracorporate knowledge sharing can provide a multitude of benefits (e.g., faster product and process innovation, reduced development costs, proactive product strategies) justifying the existence of the corporate whole.

Conceptually there are three ways that a corporation can add value to its businesses, namely through increased operating discipline, portfolio strategy, and horizontal strategy. In the past, businesses have gained from membership of the corporate whole owing to the effectuation of one of these three strategies. Although it was common for managers in subsidiaries to complain about the paperwork and fight the overhead allocation, all three strategies could make subsidiaries perform better as part of the corporate portfolio. Recently, however, the capacity for value creation of these strategies is changing very rapidly and many "traditional" sources of corporate advantage seem to evaporate. One of the traditional ways in which corporate management tried to create added value, for example, was through the increase of the operating discipline put upon the firm's affiliates. Front-line managers were put under severe pressure by their superiors to increase performance. Top management communicated in sharp and unambiguous terms via advanced management accounting systems the goals for company-wide profits and growth in their attempt to "squeeze" the most out of their investments. Strategic plans, operating plans, review meetings, budget meetings, and incentive systems (e.g., remuneration, job improvements) were used to increase the pressure on subsidiary management and coerce them to significantly improve the top and bottom-line performance. Since the early 1990s, however, increased market competition and a growing dynamism in local business environments force many front-line companies to downsize and restructure. Without the interference of corporate management, front-line managers have to establish "lean and mean" operations to remain competitive and to survive. Moreover, corporate management experiences more and more problems in defining long-term strategies, business objectives, and hence feasible performance levels on a significant "distance" from increasingly dynamic product markets. Consequently, one can safely conclude that the value creating "power" of this strategy has been gradually reduced over the past few years.

Apart from the operating discipline as a declining source for corporate advantage, the portfolio strategy has also become a less rational mechanism to validate the size and scope of many enterprises. The portfolio strategy, as mentioned earlier, is based on the premise that a single company's contribution to the risk of a portfolio is not the same as the risk of operating the single company alone. The portfolio strategy, however, can only be of economic value under imperfect capital markets. The portfolio strategy loses its potential for corporate value creation as the capital market becomes able and more suitable for effectuating this task. Today's institutional investors and other "smart" investors can obtain the same risk-return properties by buying stocks rather than acquiring companies under joint ownership and management. Moreover, hefty acquisition premiums are avoided and investments via the capital market impose no corporate costs and constraints on the investments.

As the first two corporate strategies lose their ability to justify the corporate umbrella, the implementation of an effective horizontal strategy becomes more important (Buzzell and Gale, 1987). By linking the subsidiaries horizontally, the available synergy can be exploited. Synergy occurs in situations where two or more activities or processes complement each other to the extent that their combined effect is greater than the "sum of the parts." Although costs

are associated with managing interdependencies (e.g., costs of coordination, loss of flexibility, reduced innovation, costs of compromise), the benefits of a horizontal strategy can be significant (Prahalad and Doz, 1987). Besides such horizontal strategies as the exploitation of scale by reallocation of production responsibilities and economies of scope in sourcing and logistics activities, intracorporate knowledge sharing can add to the justification of the corporate whole by reinforcing the competitive strategies of its affiliates. Intracorporate knowledge sharing creates corporate value by exploiting what is already known. Exploiting what is already known throughout the corporation can generate savings in development expenses, contribute to the achievement of "best practice" levels, and accelerate the innovation process of the affiliates involved.

In search of new sources of corporate advantage, the sharing of knowledge seems to be of growing interest for many corporations in an attempt to justify their size and scope (Hamel and Prahalad, 1993; Ghoshal and Bartlett, 1995). Intracorporate knowledge sharing seeks to get the most out of the knowledge the corporation owns and in this way is a more creative response to productivity improvement pressures than downsizing and delayering operations. Corporations can reduce redundant investments in knowledge exploration activities and exploit new ideas to boost the innovativeness of the affiliates by increasing the transfer of knowledge between their subsidiaries. As a consequence, intracorporate knowledge sharing is increasingly perceived as an interesting way to reinforce the firm's collection of competitive strategies and add corporate value. "The challenge for an organization with geographically distributed units," as Goodman and Darr (1996: 8) argue, "is to transfer best practices across settings. The more that best practices are diffused, with decreased costs of duplication and increased innovation, quality and frequency, the more the benefits of organizational learning are realized."

Besides emphasizing the importance of the leverage of internal knowledge resources, corporate management determines the required level of intracorporate knowledge sharing by their decision on the scale and scope of the portfolio of business investments. On the one hand, relatedness in terms of knowledge requirements is positively related to the possibilities to share knowledge with colleagues throughout the corporation. As previous research indicates (Pitts, 1977; Gupta and Govindarajan, 1986; Chatterjee and Wernerfelt, 1991), resource sharing tends to be greater within related diversified firms than within unrelated firms. Companies drawing strongly on some common knowledge areas are more liable to share knowledge than companies with unrelated knowledge requirements. On the other hand, it is reasonable to assume that a positive correlation exists between the required level of intracorporate knowledge sharing and the size of the corporation. The larger the scale of a corporation the larger the number of opportunities to transfer and adopt knowledge resources to and from colleagues internally.

Knowledge transactions are in many situations most efficiently governed by a firm's internal organization, as one of the firm's alternative coordination mechanism (Coase, 1937; Williamson, 1975). Compared to the market option, the organizational framework can provide higher order organizing principles such as shared coding schemes, shared values, and a shared

language (Kogut and Zander, 1992; Foss, 1996) prerequisite for successfully managing intracorporate knowledge sharing. Furthermore, the firm is a more efficient organizing mode than the market due to numerous knowledge-based transaction costs over and above the opportunistic considerations explored by Williamson (Conner and Prahalad, 1996). Although the transfer of knowledge could also be effectuated by selling it to foreign producers or a quasi-organizational arrangement with external parties (e.g., joint ventures, alliances), external transactions in knowledge are susceptible to several market imperfections including recognition problems, disclosure problems, and negative externalities (Buckley and Casson, 1976; Teece, 1980; Rugman, 1981). Moreover, as stressed by Bidault and Fischer (1994: 382), the threat of opportunistic behavior could become quite severe, especially in those situations in which the knowledge item is a key source of a firm's competitive advantage. As a consequence of the preceding constraints, many firms prefer to exercise an equity interest in the use of their intangible property and proprietary knowledge in order to exploit the organizational domain of unleveraged or low-powered incentives (Teece et al, 1994) and hence protect the firm's competitive edge. Also in launching operations in other parts of the world, companies often prefer green or brownfield investment instead of license agreements to be able to adequately control the firm's knowledge resources through a fully-owned subsidiary (Buckley and Casson, 1976).

Research by Teece (1987) and Pavitt (1990) shows that large firms have both the resources and the time to explore the implications of technological discontinuities for their business and to link them to the firm's core competencies through internal development without exposing certain valuable firm-specific assets to the threat of misappropriation by competitors. The corporation can be conceptualized as a network of companies, created to avoid purely contractual forms of knowledge transfer arrangements, in which each and every company is as a source of ideas, skills, capabilities, and knowledge that can be harnessed for the benefit of the total corporation. Conceptualized in this way, the overlapping activities and multi-country positions of multinational enterprises provide them with an important strategic opportunity. They have the chance to capitalize on the increasingly complex nature of their markets in a way that a smaller competitor with a more narrow range of activities will have a hard time to match. The multinational enterprise in this way becomes an interdependent network of companies with possibilities of strong cross-fertilization and mutual reinforcement of operations.

2.3.3 The Required Level of Intracorporate Knowledge Sharing

In the previous two sections, we reviewed the significance of knowledge within a firm's value added activities and its contribution to a firm's competitive and corporate performance. Based on research in the strategic management and international business fields, the need for knowledge exploration processes has been denoted and intracorporate knowledge sharing is

therefore presented as an effective and cost efficient way to procure the requisite knowledge items for a front-line manager in a multi-business firm. Intracorporate knowledge sharing provides a multitude of benefits for the affiliates of a multi-business firm and in doing so justifies the existence of the corporate whole. The required level of intracorporate knowledge sharing, however, differs between enterprises and is, to a major extent, determined by two determinants, namely the firm's knowledge environment and the firm's corporate strategy (see Figure 2.4).

Firms occupy different positions on the knowledge environment grid, as has been argued in section 2.3.1, because firms vary in the weight given to expertise and market knowledge. The importance of expertise and market knowledge in a firm's strive for competitive advantage is based on such factors as the industry in which the firm competes, the selected source of competitive advantage, and the particular product characteristics. In general, we assume that the need to share knowledge increases along each dimension of the knowledge environment grid, but in particular if a multinational enterprise is confronted with a growing need to achieve a cross-fertilization between their expertise and market knowledge.

In line with research findings of Hirschey and Caves (1981), we expect that the proportion of global knowledge exploration activities is positively correlated with the importance of basic research (high importance expertise) and negatively related with the need to adapt products to local market conditions (high importance of market knowledge). This means that if either expertise or market knowledge determines a firm's competitive success, concentration or dispersion of the firm's knowledge procurement activities can strongly limit the required level of intracorporate knowledge sharing. If expertise is the only critical resource in a firm's competitive strategy (i.e., left corner below in Figure 2.5), a firm will be able to achieve economies of scale by concentrating its research, development, and production activities without much concern for the circumstances in local marketplaces. An export strategy can take care of the exploitation of the product-embodied expertise. If the available market knowledge is the critical competitive success factor (i.e., right upper corner in Figure 2.5), a firm could

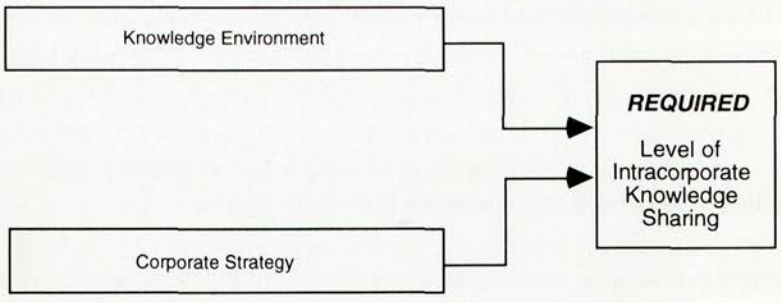


Figure 2.4: Antecedents of the Required level of Intracorporate Knowledge Sharing.

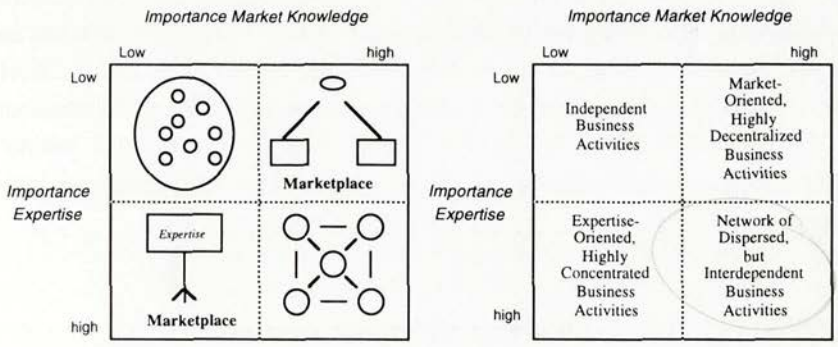


Figure 2.5: The Knowledge Environment Determinant.

decide to decentralize its business operations to facilitate the development of a distinct market feeling. By operating as close as possible to the marketplace, front-line managers can procure the required market knowledge and create a well-grounded understanding of local market circumstances.

If, however, cross-fertilization between expertise and market knowledge becomes essential (i.e., right corner below in Figure 2.5), effectiveness and efficiency rationales enforce one of the knowledge types to flow. The firm can disperse its activities and enable inter-unit relationships for the exchange and transfer of expertise; or the firm can concentrate its business activities and puts an incentive on the transfer of market information to the research, development, and production sites. As Johanson and Vahlne (1977) state, however, market knowledge is experimental of nature, the product of confrontation with all kinds of market signals, and hence difficult to codify and communicate. Consequently, the growing need to customize and adapt to local circumstances compel many multinational enterprises to shift towards a network form with multiple resource centers comparable with the transnational organization model as introduced by Bartlett and Ghoshal (1987), the heterarchy as described by Hedlund (1986), and the multi-center firm as studied by Forsgren (1990). Assisted by flexible manufacturing methods reducing economies of scale and advanced communication technology freeing much work from geographical constraints, more and more firms decide to decentralize key business functions and activities and create an interdependent network of business units obliged to share expertise for the efficiency of the organizational form.

Over and above the influence of the knowledge environment, the required level of intracorporate knowledge sharing is determined by a firm's corporate strategy comprising the selected and embraced value-added strategy, the firm's scope, and the firm's scale. The more the firm's top management and corporate strategy emphasizes the exploitation of the dispersed stock of intellectual property as one of the main sources of corporate value creation, the higher

the need to share knowledge. If other parenting advantages exist to justify the corporate whole and are effectively employed, less pressure will be put on leveraging the firm's scattered "knowledge reservoir." The relatedness of the corporation's portfolio of business activities and the size of the corporation in terms of the number of governed companies are both positively related with the possibilities and hence the need to share knowledge within the multinational enterprise. The required level of intracorporate knowledge sharing is small as a firm governs a multitude of unrelated business units or only a very small number of physically separated business operations.

2.4 MANAGING INTRACORPORATE KNOWLEDGE SHARING

Although it is essential to recognize that intracorporate knowledge sharing is one of the key challenges corporate managers face in a multinational enterprise, it is of equal importance to know how to manage this process to make it really happen. The execution of a particular strategy does not take place simply because it is considered to be desirable; it takes place if it is made to work (Pettigrew, 1987; Pettigrew and Whipp, 1991). For this reason, the major theme throughout this section is how people act and can be managed to enlarge the degree of intracorporate knowledge sharing between the dispersed subsidiaries of a multinational enterprise. While the former section presented the antecedents of the *required level* of intracorporate knowledge sharing, this section tries to discern the determinants of its *actual level* of intracorporate knowledge sharing by giving an elaboration on the most recent perspectives on managing the multinational enterprise. By matching the actual with the required situation, a fit is created which is anchored in this research project to the achievement of competitive and corporate advantage.

Management science is a field of study devoted to determine how best to attain goals in organizations. Fayol (1916, 1949) defines the concept of management as comprising of five activity elements: forecasting and planning, organizing, commanding, coordinating, and controlling. In general, however, the research history of the management field shows a continuous strive to classify a group of people into formal structures. Although the management theory has moved from "the one best way" approach (Chandler, 1962; Stopford and Wells, 1972; Franko, 1976), toward an "it all depends" approach, formally known as contingency theory (Lawrence and Lorsch, 1967; Pfeffer, 1978, 1981, Miller, 1987), a new school of research on the multinational enterprise argues that this approach needs to be further adapted. For many years, top management in many corporations turned to structural solutions to their problems, but more and more companies need a more flexible organization which is better able to adapt to the changes in the internal and external environment. Formal arrangements create no space for steady and continuous adaptations and tend to oscillate from one form to another. By focusing on the processes instead of the structure underlying each

company, researchers and managers will be better able to find the key indicators determining success or failure of a company.

The essential difference between multinationals and more simple organizations, Doz and Prahalad (1991: 146) argue, stems from the combined consequences of multidimensionality and heterogeneity. "Multi-dimensionality results from the very nature of diversified multinational companies: they cover multiple geographical markets, with multiple product lines, in typically multi-functional activities, such as sales, manufacturing, service, R&D, etc... Heterogeneity results from the differences between the optimal trade-offs for different businesses, countries, functions and tasks as a function of a whole range of economic and political characteristics which differ between countries and affect individual businesses and tasks in quite varied ways." More and more, multinational enterprises are becoming global organizations with their companies linked through an interdependent internal network and differentiated because of differences in local circumstances. Managers are constantly trying to find the right balance, as Doz and Prahalad (1987: 5) argue, between two imperatives. First, the economic imperative represents the impact of global competition that pressures the multinational enterprise to transcend the boundaries of national markets, to develop a global strategy and to rationalize global operations through central control and coordination. Second, the political imperative can be denoted by the adjustments made necessary by host government demands, resulting in greater autonomy at the subsidiary level but arising from diversity among national markets that call for increased local responsiveness.

Emphasizing such a global integration/local responsiveness framework, the contributors to this so called "process" school of research on multinational enterprises (e.g., Prahalad and Doz, 1987; Bartlett and Ghoshal, 1989; Hedlund and Rolander, 1990) conclude that no one best structure provides the solution to this dilemma. The required internal differentiation due to the need to deal with both the multidimensionality and heterogeneity makes a structural theory of multinational enterprises probably impossible to develop. No single stable one-dimensional structure is likely to be practical. A management theory of the multinational enterprise must take into account that management processes need to differentiate between various countries, products, and functions. The existing management theory is too "architectural" to be applicable to the complexity and internal diversity of the multinational enterprise. Thus, strong objections can be made regarding efforts to set boundaries of multinational enterprises against other forms of organization of international investment and trade (Hymer, 1960; Dunning, 1981) and to investigate contingencies of organizational structures of multinational enterprises (Fouraker and Stopford, 1968; Stopford and Wells, 1972). Instead, theorists of the process school build upon the idea that the multinational enterprise has become too complex to be centrally managed and propose to go beyond the organizational structure to focus on the analysis of management processes in multinational enterprises.

Their argument is strongly based on Joseph Bower's (1970) work on the resource allocation process in large diversified organizations. Assuming an intentional rational manager who is pursuing both corporate and personal goals, Bower proposes that the key role for top

management is not in taking decisions or formulating management objectives, but in shaping the structural context as the principal way to influence the behavior of managers further down the hierarchy. In contrast to the situational context which is made up of personal and historical factors, the structural context - comprising the formal organization, the system of information and control, and the systems used to measure and reward performance of managers - is "particularly important because all its elements are subject to control by top management. [...] The role of the structural context is that it shapes the purposive manager's definition of business problems by directing, delimiting, and coloring his focus and perception; it determines the priorities which the various demands on him are given" (1970: 73). Thus, by shaping the structural context, and in this way clarifying what the corporation regards as desirable behavior, top management can control the levers that influence behavior of managers at the lower levels of the organizational hierarchy.

In line with Bower and various subsequent writings of academics (e.g., Burgelman, 1983), this so called process school of research on the multinational enterprise stresses the need to focus on the issues that managers face in their day-to-day operations, and to direct the central task of general management as shaping the organizational context. Instead of changing the "blueprint" of the organization, the preferred alternative for corporate management is to create a structural context as a more subtle strategic control mechanism within which opportunities for linkages between subunits will arise at various points, levels in organization, and times. As stated by Doz and Prahalad (1991: 147): "The size and complexity of the typical multinational enterprise often with hundreds of business units active in scores of countries, means that linkages and interdependencies cannot be planned, or centrally managed. Which linkages are going to be useful at a particular point in time for a specific task between two or more subunits is unpredictable, and probably needs to be self-adjusting." For managing the key processes in the global businesses, top management of most companies, Prahalad and Doz (1987: 187) argue, has available a broad repertoire of management tools. Planning systems, accounting systems, management development systems, measurement systems, committees for coordination, and business reviews provide a rich infrastructure for top management to shape the behavior of managers lower down the organizational hierarchy. These management tools express the organizational rules of the game that shape executive perception, expectations, and behavior.

Apart from the implementation of management tools, a corporate context is strongly influenced by its administrative heritage (see Figure 2.6). A corporation's administrative heritage is the consequence of the way the organization has acted and was managed in the past. The administrative heritage is often strongly related to a firm's geographical and cultural background. The distinctiveness in background has created and institutionalized distinct structural organizational configurations, administrative processes and management mentalities which are hard to change. In an empirical research project, Bartlett and Ghoshal (1989) have found three clearly distinguishable organizational models among nine multinational enterprises which could be linked to their geographical home-base in the USA, Japan, and Europe.

According to Bartlett and Ghoshal, all three multinational enterprise models have problems in today's complex global environments, because they cannot meet the demand to simultaneously achieve national responsiveness, global efficient integration, and the ability to develop, transfer, and combine knowledge worldwide. Bartlett and Ghoshal have constructed the transnational organization as a solution to this demand which, however, is not derived from empirical evidence as are the other three models. Important tools in this new kind of organization are informal mechanisms of coordination, including normative values, and modes and patterns of internal communication.

The new kind of organization which these various researchers of the process school describe should trade-off the costs and benefits regarding national responsiveness and multinational integration in a flexible manner. The key organizational competence of the global firm is the capability to "shift the locus and logic of decision from a national concern to a global view, and vice versa, from decision to decision" (Doz, 1986: 214). This type of organization is not easy to manage. The threat of internal fragmentation and dissipation is obvious, because of the strong degree of dispersion. Furthermore, the interdependence deliberately created between companies may counteract the need for flexibility, since complexity can obstruct the necessary learning capability. However, according to Bartlett and Ghoshal (1987), these problems can be resolved by top management if they succeed in legitimizing diverse perspectives, develop multiple coordination and innovation processes, and build shared vision and individual commitment. The only way corporate management can accomplish this is through the creation and adaptation of the structural context of their corporation. This corporate context needs to clarify the direction the various businesses should be going and to stimulate and facilitate the desired actions of managers within the multinational network.

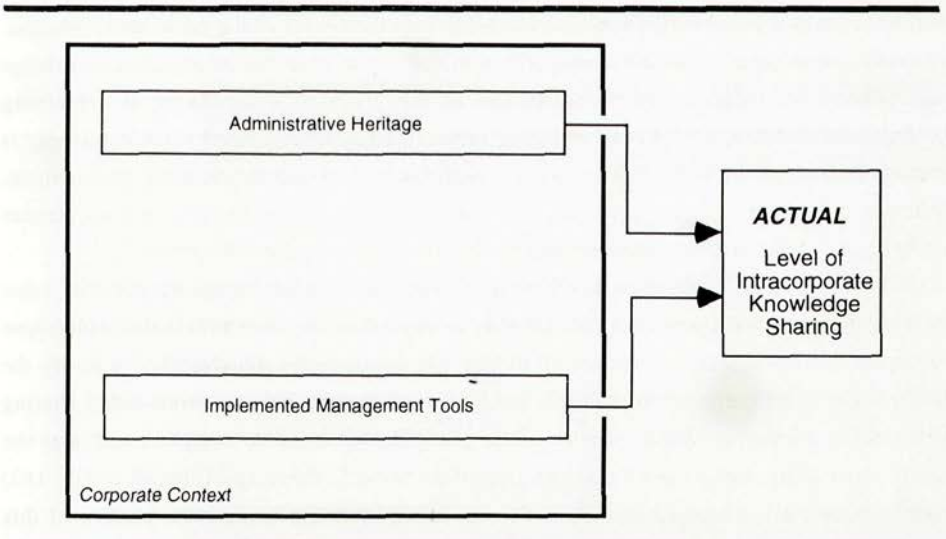


Figure 2.6: Antecedents of the Actual Level of Intracorporate Knowledge Sharing.

To summarize, we believe that it is the responsibility of corporate management to create a structural context as a subtle strategic control mechanism within which opportunities for linkages between subunits will arise. Like Ghoshal and Bartlett (1994: 92), we assume that "an organization can similarly create and embed in its context a work ethic that would induce rational yet value-oriented actions on the part of its members in furthering the interests of the organization as an end in itself, not just a means to an end." Top management can use a broad "arsenal" of management tools in shaping this structural context. In this study, the aim is to present those management tools shaping the corporate context and affecting the deterrents and behavior of managers regarding intracorporate knowledge sharing. Although acknowledging the importance of the administrative heritage on the day-to-day interactions between a firm's employees, we focus this study on the role of a firm's top management in managing this value-creating process. Limited in its ability to pursue a more active role, corporate management can primarily stimulate and facilitate the intracorporate knowledge sharing process by implementing management tools directed at neutralizing or at least minimizing the barriers to the transfer of knowledge.

2.5 SUMMARY AND CONCLUSIONS

In this second chapter, the concepts of knowledge and intracorporate knowledge sharing were reviewed and related to the discussions on competitive and corporate strategy. After a brief elaboration on knowledge and its various faces in the organizational context, it has been argued that the competitive advantage of an individual firm to a major extent is based on the firm's relative position in the industry, its stock of relevant, valuable and unique resources, and its ability to innovate. More coherence in the strategic management field can be created, as various scientists propose, by putting knowledge into the center of the competitive process. Everything that describes a firm's competitive strategy is an aspect of its available knowledge and hence knowledge could be positioned as the common determinant in explaining performance differences between competing firms. In a knowledge-based view, knowledge is conceptualized as one of the key resources owned by a firm and the creation, procurement, analysis, combination, and application of this knowledge is one of the critical competences underlying successful competitive strategy.

As a consequence, multinational enterprises should start to acknowledge the potential value of leveraging internal knowledge resources as an important way to reinforce the competitive strategies of their subsidiaries. In search of new sources of corporate advantage to justify the existence of the "corporate umbrella", we believe that intracorporate knowledge sharing generates considerable added value to offset unavoidable corporate costs and validates the portfolio of companies as more than the sum of its parts. In this respect, Peters (1995: 162) quotes Sune Karlsson, head of ABB's Power Transformers division, who confirmed this argument by stating: "We are a collection of local businesses with intense global coordination.

[...] Our most important strength is that we have 25 factories around the world, each with its own president, design manager, marketing manager, and production manager. These people are working on the same problems and opportunities day after day, year after year, and learning a tremendous amount. We want to create a process of continuous expertise transfer. If we do, that's a source of advantage none of our rivals can match." If managed appropriately, intracorporate knowledge sharing offers a corporation's subsidiaries a multitude of benefits like faster product and process innovation, reduced development costs, and proactive product strategies. Because injecting high-powered, market-like incentives on knowledge transactions may jeopardize this process, the internal organization with its unleveraged and low-powered incentives is discerned as the preferred setting to coordinate knowledge sharing (Teece, Pisano and Shuen, 1994: 14).

In this connection, leveraging valuable and internally available knowledge resources should increasingly be notified as one of the major managerial challenges of the 1990s. To put it simply, intracorporate knowledge sharing is the application of existing knowledge for a new use or user. It is a process by which knowledge developed for one purpose is employed either for a different application and/or by a new user. The activity involves principally an increased utilization of the existing knowledge base, comprising both expertise and market knowledge, in new areas of application as opposed to its expansion by means of further knowledge exploration. The time span for the transfer can be quite short - a matter of days in cases where the knowledge transferred may be directly applied in its existing form to the new environment - or the process can extend to a considerable number of years in cases where extensive modification, redesign, or adaptive engineering is required to make the knowledge fit its new role (Gee, 1981).

We can now embed our managerial framework, as presented in the following chapters, in the strategic management and international business field. The issue of intracorporate knowledge sharing has been put into a broader perspective and the main observations are summarized in the conceptual model as presented in Figure 2.7. The conceptual model depicts the need to create a strategic "fit" between the required and actual level of intracorporate

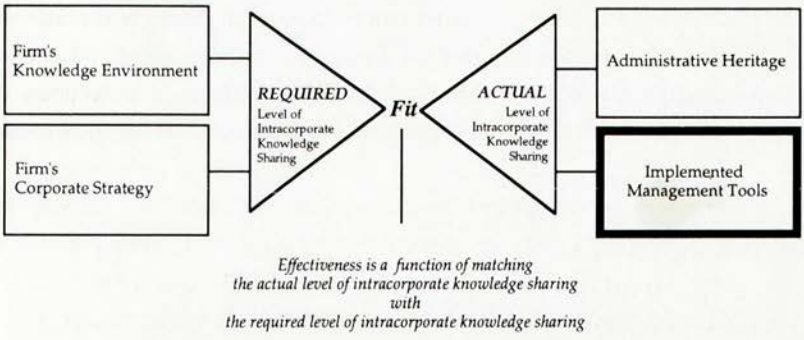


Figure 2.7: Strategic Perspective on Intracorporate Knowledge Sharing.

knowledge sharing. The concept of "fit" is an important building block for theory construction on strategic management (Venkatraman, 1989) and is anchored in this research on managing intracorporate knowledge sharing to the achievement of competitive and corporate advantage (see Figure 2.7). The knowledge environment in which the firm's subsidiaries operate and the firm's corporate strategy in terms of the value added strategy applied and the scale and scope of its portfolio are the two main determinants of the required level of intracorporate knowledge sharing. The antecedent of the actual level of intracorporate knowledge sharing and hence the factors giving form and content to the corporate context are the corporation's administrative heritage and the implemented management tools.

As argued in the introductory chapter, the principal research aim of this research project is the development of a managerial and integrative framework depicting the management systems stimulating and facilitating intracorporate knowledge sharing between the dispersed companies of a multinational enterprise. Although the other three determinants in the strategic "fit" model have been integrated in the empirical research and acted as selection criteria for the three case study companies, the implemented management tools are of particular interest because of our particular concern for the role of corporate management in the leverage of the firm's knowledge reservoir. As argued in this chapter, the complexity of multinational enterprises enforces corporate management to delegate the responsibility to initiate and effectuate intracorporate knowledge sharing to front-line managers and limit oneself to the creation of a corporate context stimulating and facilitating the desired behaviour lower down the organizational hierarchy. Assuming that the administrative heritage has to be treated as a given, a broad repertoire of management tools is available to fulfil this task.

"Our vision of Whirlpool," David Whitman, CEO of Whirlpool, argues, "is to integrate our geographical businesses wherever possible. [...] take the best capabilities we have and leverage them in all of our operations worldwide. [To achieve these goals] you must create an organization whose people are adept at exchanging ideas, processes, and systems across borders; people who are absolutely free of the "not-invented-here" syndrome; people to identify the best global opportunities and the biggest global problems facing the organization" (Maruca, 1994). Which management tools can and should be implemented by corporate management in its responsibility to shape this kind of organization and to create a "fit" between the required and actual level of intracorporate knowledge sharing is at center stage in chapter 4 and chapter 5. Before focusing on the theoretically required and empirically implemented management tools, however, chapter 3 introduces a conception of the intracorporate knowledge sharing process to structure the theoretical and empirical research in this respect.

3

Conceptualizing the Intracorporate Knowledge Sharing Process

A Process Analysis

"The need for differentiation makes a structural theory of multinational enterprises relative difficult to develop. In fact, [...] a structural theory of multinational enterprises would have little to offer. One needs a theory that transcends the structural dimensions to focus on underlying processes."

- Doz and Prahalad (1991: 146).

3.1 INTRODUCTION

This research project is an effort to develop a managerial framework including some preliminary propositions on the management systems for stimulating and facilitating intracorporate knowledge sharing. Former studies have contributed to the general understanding of the need for intracorporate knowledge sharing in corporate strategy (e.g., Hamel & Prahalad, 1993; Ghoshal & Bartlett, 1995) and have elaborated extensively upon the factors positively and negatively influencing the intracorporate knowledge sharing process (e.g., Glaser, Abelson, and Garrison, 1983; Rogers, 1995). Former studies, however, failed to come up with an integrative perspective on the intracorporate knowledge sharing process allowing the observation, analysis, understanding, and normative assessment of the managerial tasks and responsibilities with respect to this particular knowledge activity. The earlier-mentioned "process" school of research on the multinational enterprise, for example, refers regularly to the issue of intracorporate knowledge sharing but with the expressed ambition of putting managerial relevance before theoretical elegance. Notwithstanding its thought-provoking research evidence and statements, the conceptual contributions are expressed in rather general terms obstructing empirical verification (Hagström, 1991) and provide limited guidance for practical managers inspired by their appealing conclusions (Melin, 1992).

Top management, as argued in the preceding chapter, has the responsibility to create a corporate context as the principal way to influence the behavior of managers further down the hierarchy. In shaping a context that stimulates and facilitates the transfer and adoption of

internally available knowledge items, top management can use a broad repertoire of management tools. In our search for and attempt to structure "stimulators" and "facilitators"[1], the deductive reasoning has been built upon an understanding of the barriers obstructing, hindering, and complicating the successful initiation and effectuation of knowledge transfer efforts. The communication involved in knowledge transfer often takes place between individuals using different vocabularies, styles, channels, schedules, and reward systems. Formal and informal communication barriers exist between different cultures, different sciences, and different levels of abstraction in what is being transferred (e.g., an abstract theoretical technology as against, say, a concrete product design). Boundary spanning seems to be an important concept for this issue (Williams and Gibson, 1990) and hence should be acknowledged as such in our study.

The process analysis presented in this chapter provides an organizing framework for further exploitation of what is known and delineation of what else we need to know to paint a more complete picture on managing intracorporate knowledge sharing. The conceptualization of the intracorporate knowledge sharing process enables the clustering of the voluminous set of barriers enlisted in the literature around particular stages and hence provides a means to integrate and leverage the observations and findings offered by former studies. The conceptual and practical challenge is not to detect new barriers to intracorporate knowledge sharing, but to make managerial sense of the number and range of possible deterrents. By detecting where and how these various variables affect the transfer and exploitation of internally available and valuable knowledge items, conclusions can be formulated on the critical managerial responsibilities and the prerequisite management systems for managing intracorporate knowledge sharing.

In the following section, a general description of the intracorporate knowledge sharing process is given and a distinction between two phases is made, being the decision phase and the execution phase. Subsequently, the decision and execution phase are discussed and reviewed on their particulars in section 3.3 and section 3.4 respectively.

3.2 CONCEPTUALIZATION OF INTRACORPORATE KNOWLEDGE SHARING

Intracorporate knowledge sharing can be viewed, conceptualized, and investigated as a special kind of communication (Van Geenhuizen, 1994; Szulanski, 1995a). Communication is commonly defined as a process of social interaction through messages (Fiske, 1990) and could be seen, in oversimplified terms, as a source sending a message via certain channels to a receiving individual (Berlo, 1960). A communication effort can be classified as an act of intracorporate knowledge sharing if the core message, transmitted within the boundaries of a

[1] "Stimulators" and "facilitators" are implemented management tools stimulating and facilitating intracorporate knowledge sharing. "Stimulators" have a positive effect on the initiation and "facilitators" are positively correlated with the effectuation of intracorporate knowledge sharing efforts.

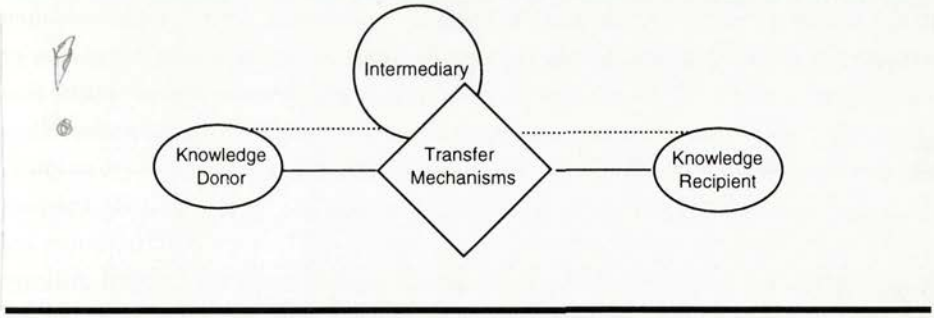


Figure 3.1: A Communication-based Model of Knowledge Transfer.

firm, comprises a knowledge item (e.g., expertise, market information of strategic value) which will be applied and integrated in the organization of the receiving unit. Apart from the donor and the recipient, Van Geenhuizen (1993: 5) introduces an intermediary as a third party in the knowledge sharing process[2]. Whereas the source and the receiver are crucial actors, the intermediary can be considered as optional. Intracorporate knowledge sharing may equally run by means of intermediation and without intermediation, directly from source to receiver (see Figure 3.1).

Instead of the communication-based model, various alternative models can be applied to conceptualize the technology transfer process[3] like the appropriability model (Devine, James, and Adams, 1987), the dissemination model (Rogers and Kincaid, 1981), and the knowledge utilization model (Glaser, Abelson, and Garrison, 1983). These alternative models, however, do not capture the process as well as the communication-based model. The communication-based perspective on knowledge transfer integrates into the research approach several important characteristics of interpersonal communication (Williams and Gibson, 1990; Spence, 1994). Intracorporate knowledge transfer is an interactive communication process where the actors involved exchange their thoughts simultaneously. Knowledge transfer is often a chaotic, disorderly process involving people who may hold different views about the value and potential use of the knowledge in question. Feedback helps participants reach convergence about the important implications and characteristics of knowledge items. Moreover, both problems looking for solutions (knowledge pull) and solutions looking for problems (knowledge push) are encountered by the communication-based model on intracorporate knowledge sharing (Gibson and Smilor, 1991: 292).

Following the research tradition of many communication theorists, a study on managing intracorporate knowledge sharing should focus, as depicted in Figure 3.2, on the barriers

---

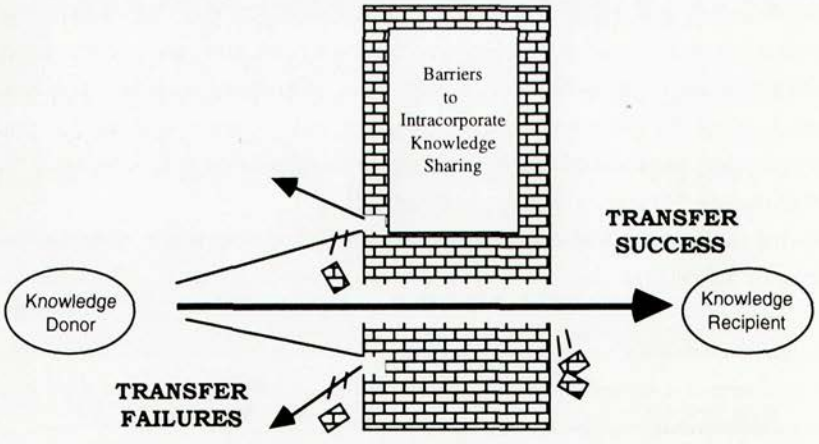
2 In an organizational setting, the intermediary role refers to a formally institutionalized responsibility for the firm's top management, liaisons, or boundary spanners. Intermediation can also be offered on a more informal basis by employees throughout the organization.

3 See Williams & Gibson (1990: 15) for a brief review of these prior attempts to model the technology transfer process.

obstructing, hindering, and complicating the successful initiation and effectuation of this process (Souder and Padmanabhan, 1989; Keller and Chinta, 1990). Communication researchers often see communication as a process by which one person affects the behavior or state of mind of another. If the effect of the communication is different from or smaller than was intended, many communication researchers tend to talk in terms of communication failure caused by certain barriers to the effective transmission of the message from donor to recipient. With respect to intracorporate knowledge sharing, the number and range of possible deterrents enlisted in the literature are overwhelming (e.g., Arrow, 1971; Allen, 1977; Ounjian and Carne, 1987; Smilor and Gibson, 1991). Consequently, the conceptual and practical challenge is not the generation of new deterrents, but bringing some order and making sense of this voluminous set of variables (Glaser, Abelson and Garrison, 1983). This collection serves as a building block from which the managerial framework on intracorporate knowledge sharing is constructed.

In this research, a process conceptualization of intracorporate knowledge sharing is used comprising four distinctive stages, namely awareness, interest, preparation, and transfer (see Figure 3.3). Although no subdivision can actually be as self-contained as a discrete stage in a process which is characterized by a high level of reciprocity, thinking in terms of stages is more convenient since it brings order into a rather complicated process. By detecting where and how the various deterrents affect intracorporate knowledge sharing, clusters of barriers can be deduced. Such a grouping of barriers can operate as a groundwork for deductive reasoning towards propositions on the theoretically prerequisite management systems for managing intracorporate knowledge sharing. Consequently, the distinction of four stages is justified on the basis of its contribution to researchability and its help in clustering the numerous barriers to intracorporate knowledge sharing.

In contrast to the classical diffusion model (e.g., Rogers and Shoemaker, 1971), the four-stage conception of the intracorporate knowledge sharing process places more emphasis on the



Adapted from Padmanabhan & Souder (1994)

Figure 3.2: The Knowledge Transfer Problem.

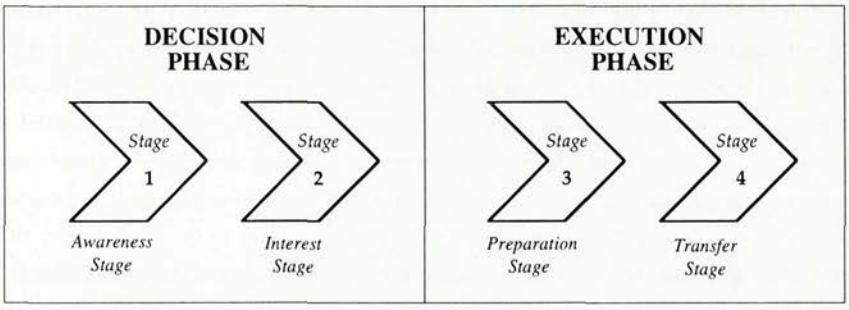


Figure 3.3: The Four Stages of the Intracorporate Knowledge Sharing Process.

activities concerned with the effectuation of the knowledge transfer. The classical model identifies five sequential stages (i.e., awareness, interest, evaluation, trial, application) and is primarily concerned with personal decision-making leading, eventually, to the acceptance or rejection of an innovation (Spence, 1994). As argued in the introductory chapter, however, any practical theory of management should be concerned with the process of decision as well as with the process of action (Simon, 1976). A theory of management, as Simon (1976:1) argues, "should include principles of organization that will ensure correct decision-making, just as it must include principles that will insure effective action." So, instead of focusing on dichotomous yes/no adoption decisions (Tornatzky and Klein, 1982: 29), one should look to both the formulation (initiation) and the implementation (effectuation) as the dependent variables of successful intracorporate knowledge transfer.

Following the two-phase conceptualization suggested by Zaltman, Duncan and Holbek (1973), Rogers (1983), and Damanpour (1991), an additional sub-division was made between those stages in which the actors decide to initiate a knowledge transfer effort and those stages in which the transfer of knowledge is effectuated. The *decision phase* determines the number of times (n) that a knowledge transfer effort is initiated (*Quantity Determinant*). The *execution phase* determines the success of the attempt to transfer knowledge and hence the value added by the knowledge sharing initiative (*the Value Determinant*). Combining the quantity and value determinant, one is able to approximate the actual total value created by intracorporate knowledge sharing (ATVIKS)[4] by accumulating (N) the value added by each intracorporate knowledge sharing project (Vi). In mathematical terms, this means:

$$ATVIKS = \sum_{i=1}^{n} V_i \qquad (3.1)$$

[4] The concepts actual total value created by intracorporate knowledge sharing and actual level of intracorporate knowledge sharing (see chapter 2) are used interchangeably in this study. No difference in meaning exist between the two concepts.

The formula on the actual total value created by intracorporate knowledge sharing (ATVIKS) has acted as an important indicator during the research project. Although impossible to quantify exactly, this formula clearly depicts the managerially most relevant determinants, namely the number of initiated intracorporate knowledge sharing efforts and the value added of each individual attempt. Each determinant is negatively correlated with deterrents related to the decision (*Barriers* n) and execution phase (*Barriers* v). "High" barriers in the decision phase are most often related with a low number of initiated intracorporate knowledge sharing efforts. "Low" barriers in the execution phase mean that a larger chance exists that the value added by an intracorporate knowledge sharing effort is optimized. Top management, in its task to stimulate and facilitate the intracorporate knowledge sharing process, has to reduce the obstructing and complicating influence of the various barriers. Treating the administrative heritage as given, the "height" of the barriers is negatively related to the degree of development of the prerequisite management systems (the "stimulators" and "facilitators"). In mathematical terms, this means:

$$ATVIKS = f(Barriers_n, Barriers_V) \tag{3.2}$$

$$Barriers = f(mgt.systems, adm.heritage) \tag{3.3}$$

Before the barriers and theoretically prerequisite corporate management systems are described and reviewed in chapter 4 and chapter 5, the two distinctive phases of the intracorporate knowledge sharing process require some further attention. The decision and execution phase, each comprising two distinctive stages and each influencing one of the two determinants of the actual total value of intracorporate knowledge sharing, are discussed in the next two sections of this chapter.

3.3 DECIDING TO PARTICIPATE IN SHARING OF KNOWLEDGE

Individuals in organizations need to make various decisions each day whether, how, and when they or their subordinates are going to take action. The fact that organizations make decisions which determine their actions is widely and firmly accepted in the field of organization theory (Mintzberg and Waters, 1990). Organizational members are confronted with various decision situations which enforce them to make choices from among two or more alternative possible actions, any one of which a given individual may undertake. Consequently, "the task of deciding," as Simon (1976: 1) argues, "pervades the entire administrative organization quite as much as does the task of doing - indeed, it is integrally tied up with the latter." Instead of discussing administration as the art of getting things done, "a general theory of administration

must include principles of organization that will insure correct decision-making, just as it must include principles that will insure effective action." While section 3.4 places emphasis upon the activities insuring incisive action, this section focuses upon the preceding decision-making process regarding intracorporate knowledge sharing.

Knowledge transfer and knowledge adoption are special kinds of decision-making processes involving both the knowledge donor and the potential recipients of a valuable knowledge item. Besides the donor being willing to share his or her knowledge, potential recipients have to make up their mind with respect to their eagerness to adopt, apply, and integrate a particular knowledge item originating from one of the firm's other subsidiaries, in their own operations. The decision phase is a critical phase because if one of the parties decides to withdraw and hence block the initiation of an intracorporate knowledge transfer effort, knowledge sharing and hence corporate value creation will not onset. Consequently, to leverage the internal knowledge reservoir successfully, a firm's top management is obliged to manage the decision phase of the intracorporate knowledge sharing process in an attempt to upgrade the number of intracorporate knowledge sharing initiatives (i.e., the quantity determinant of the actual total value of intracorporate knowledge sharing).

Although agreeing with Pettigrew (1990: 8) that decision-making should be understood conceptually as a continuous process in context, we assume for analytical reasons that the decision phase commences when individuals become aware of an intracorporate knowledge sharing opportunity and concludes when the decision is made by both the donor and recipient to agree upon or reject the initiation of an intracorporate knowledge sharing effort. Although some writers still assume that when something new and worthwhile becomes available it creates a demand by itself, it is increasingly acknowledged that the adoption process is far more complicated and needs to be conceptualized as any other decision-making process. The optimizing model of decision-making (Rados, 1972) can provide a fairly accurate description of the decision-making process if the parties are faced with a simple decision situation (e.g., when there are few alternative courses of action and cost of searching for and evaluating alternatives are low). We need to acknowledge, however, that many decisions to initiate an intracorporate knowledge sharing effort do not involve simple and well-structured problems. Rather, decision situations regarding knowledge transfer initiatives are often characterized by complexity, relatively high uncertainty, and goals and preferences that are neither clear nor consistent.

The decision phase, as discerned in the preceding section, comprises two arbitrarily defined stages, being an awareness and an interest stage (see Figure 3.4). Once again, we want to stress that it is acknowledged that no subdivision of the process can actually be as self-contained as a discrete stage (Spence, 1994: 56). It is recognized that there is no boundary point of separation between any of them and that the decision-making process could be better conceived if decision-making is understood as a continuous process in a context and not as a discrete decision event abstracted from the series of decisions and other actions of which it is part (Pettigrew, 1990: 8). The subdivision into a selected number of stages, however, is used in this

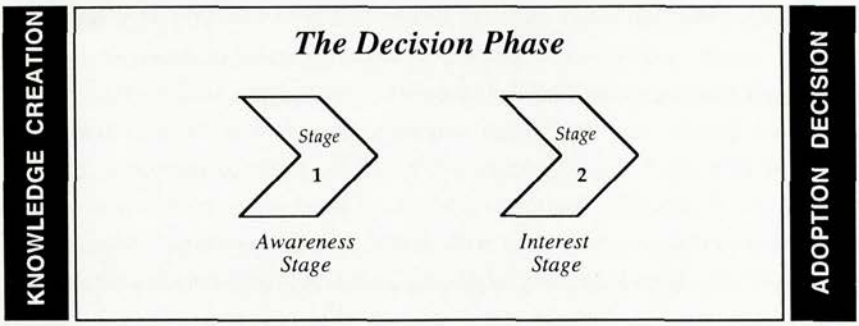


Figure 3.4: The Two Stages of the Decision Phase.

research project because it helps to break up a rather complicated process and enables us to focus on smaller units which may be more easily understood. The orderly presentation of stages of intracorporate knowledge sharing provides source material for detecting and structuring the numerous barriers involved.

The awareness stage is the only genuine stage. One can only become aware of something new once and without successfully passing this stage an intracorporate knowledge sharing option will not be considered. Awareness can be the result of the donor looking for application opportunities, the recipient searching for appropriate knowledge internally to solve its problems or exploit the identified opportunities, and an intermediary detecting an opportunity to leverage internally available knowledge. Previous research (Feldman and Kanter, 1965; Glueck, 1976; O'Reilly, 1982; Culnan, 1983) suggests that some sort of threshold must be exceeded before organizational members or units are actively going to search for new information or knowledge. Often the donor starts to search for intracorporate knowledge sharing opportunities only in response to actual or suspected problems or opportunities. Next to the "buyer's model," Ross (1974) presents the "seller's model" as an alternative way in which innovations could be diffused. The seller's model entails the process of initiating contact with potential users and sustaining that contact to achieve the transmission and use of the innovation by others. The role of the "seller" can be taken by the knowledge donor or by an intermediary (e.g., process leader, liaison member).

After the knowledge item attracted the attention of a possible user, he or she will try to find out whatever additional details and information is obtainable about the item. The user's actions to acquire factual data on the performance and effects of the knowledge will be aimed towards providing an adequate basis for the making of an evaluative judgement. The recipients primarily will be trying very hard to apply the new knowledge mentally to their present situation in order to judge its potential benefit for the future or will decide to start a trial on a reduced scale. The costs of acquiring the knowledge and putting it into practice will be confronted with its benefits. Besides these direct costs, other disadvantages to be considered could include uncertainty of operation, eventual obsolescence, and problems in making

adjustments to the solution to adapt to local circumstances. Moreover, the particular knowledge item will be traded off against other ways to solve the existing problem and the most adequate level of adoption will be determined to circumvent a situation in which the acquired knowledge is utilized far beyond its intended limits and becomes dysfunctional.

The interest stage is technically finished as the parties involved have decided upon their willingness to put their effort in the transfer of the knowledge item. The decision phase ends when one of two situations occur: (1) the recipient decides to integrate the knowledge item at stake in its own operations and finds the donor willing to participate in the effectuation, or (2) the parties involved are not convinced of the added value of the knowledge transfer initiative and consequently decide to reject. In practice, however, evaluation is a continuous process and hence often continues in the execution phase of an intracorporate knowledge sharing effort. The time elapsed between the conception of a knowledge item and its adoption can vary strongly (Gee, 1974, 1978; Ettlie and Rubenstein, 1979). Gee (1974) shows that the average time span for adoption or adaptation of promising innovations varies for different countries - for example, 7.4 years in the United States, 7.7 years in the United Kingdom, 3.4 years in Japan, and 5.2 years in Germany. The time period also varies for different industries, technologies, product types, environmental conditions, and means of financing (Glaser, Abelson, and Garrison, 1983).

The role of a firm's top management in managing the decision phase is limited to a stimulating task. The task to stimulate means the responsibility to enlarge the number of knowledge sharing initiatives by influencing, in Bower's (1970) terminology, the decision-making process of the front-line managers lower down the hierarchy. In this section it has been argued that before knowledge can become subject of an intracorporate knowledge sharing project it is necessary that its existence is known and that the problem owners are made aware of their decision situation. Consequently, a firm's top management needs to ensure that those knowledge items interesting from a knowledge sharing point of view are known throughout the organization. Moreover, they need to make sure that the decision criteria applied by the front-line managers lower down the hierarchy are in line with the objectives of the firm at large[5].

3.4 ACTIVITIES TO EFFECTUATE KNOWLEDGE SHARING

Like every other decision, intracorporate knowledge sharing does not take place simply because it is considered to be desirable; it takes place if it can be made to work. Every decision-making process is of little value to an organization unless the decision is capable of being effectuated. Consequently, since implementation can make a sound decision ineffective

---

5 These preliminary conclusions evolve into well-founded propositions in the fourth chapter where the barriers in the decision phase of the intracorporate knowledge sharing process are detailed and the prerequisite management systems to remove or reduce them proposed.

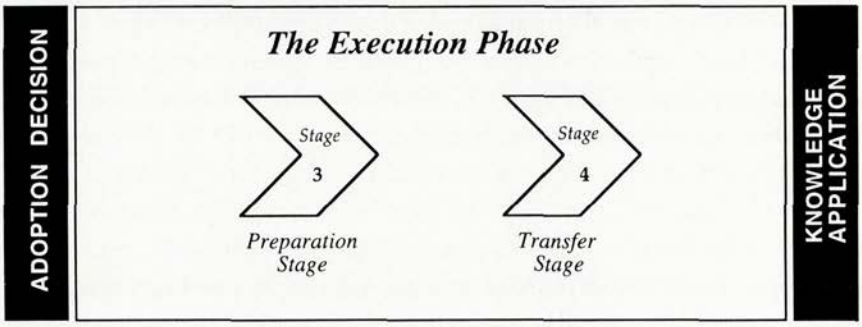


Figure 3.5: The Two Stages of the Execution Phase.

or a debatable choice successful, it is important to study the process of implementation while evaluating the appropriate decision. After making the decision to initiate an intracorporate knowledge sharing project, however, the second phase of effectuating the transfer of knowledge commences. This execution phase concerns those activities that put the knowledge item into use and ensures its integration in the knowledge reservoir of the recipient (Damanpour, 1991). Instead of the strictly mental exercise of the decision phase, the execution phase involves overt behavior change as the new idea is actually put into practice (Rogers, 1995) and hence requires a totally different orientation than the one needed in the preceding phase.

The execution phase usually follows the decision phase rather directly (unless its is held up by some logistical or resource problem) and ends eventually as the point is reached at which the new idea becomes an institutionalized and regularized part of the adopter's ongoing operations, or as the parties involved agree that the adoption decision was a mistake. Although we have to admit once again that the boundaries and sequence of the stages are far less than clear and that even the possibility exists that the actors return to the decision phase during the knowledge transfer endeavour, two generic stages are discerned in the execution phase of the intracorporate knowledge sharing process, namely the preparation and the transfer stage (see Figure 3.5). To complete the knowledge transfer successfully, a shared responsibility of both the donor and the recipient exists in these two stages of the execution phase. Although the leading role shifts from the donor to the recipient during the execution phase, both actors have to put their effort in the optimal application and integration of the knowledge item at stake. Without this mentality of the involved parties, the value added of the knowledge sharing initiative (the *Value Determinant*) will suffer and could even lead to a loss-making process.

The preparation stage creates - if managed appropriately - the requisite groundwork for the transfer process (Reilly, 1988) during which the donor and recipient study the particular characteristics of the project, formulate their judgement on the complexity of the project, and decide upon the required transfer medium (e.g., distract from databases, special reports, liaison member, bilateral or group meetings, personnel transfer). Communication media, as Daft and

Lengel (1984; 1986) argue, vary in their capacity to process rich information. The reason for richness differences include the medium's capacity for immediate feedback, the number of cues and channels utilized, personalization, and language variety (Daft and Wiginton, 1979). Media of low richness are effective for processing well-understood messages and standard data, while media of high richness are necessary to accomplish the transfer of very complex messages. Consequently, it is very important that the complexity of the transfer situation is brought into line with the richness of the transfer medium (Galbraith, 1973; Lengel and Daft, 1984; Adler, 1990; De Meyer, 1991).

During the preparation stage of an intracorporate knowledge sharing project one needs to study the complexity of the particular situation and decide upon the most suitable transfer mechanism to be used for the effectuation of the knowledge transfer (see Figure 3.6). On the one hand, the particular knowledge transfer medium must be capable of dealing with the complexity of the situation to lead to a successful movement and application of the particular knowledge item. The knowledge transfer is complicated, as will be discussed in Chapter 5, by such factors as the nature of knowledge, the motivation of the actors, the heterogeneity of prior knowledge, and the level of trust between the actors. On the other hand, efficiency rationales demand that complex transfer mechanisms are not used for relatively simple knowledge transfer situations. For example, the know-how and experience regarding the automatization of an production plant is very difficult to convey effectively via a telephone conversation or written documentation, but the use of an expatriate for the effectuation of a rather simple knowledge transaction such as the explication of a particular sales technique could be far too

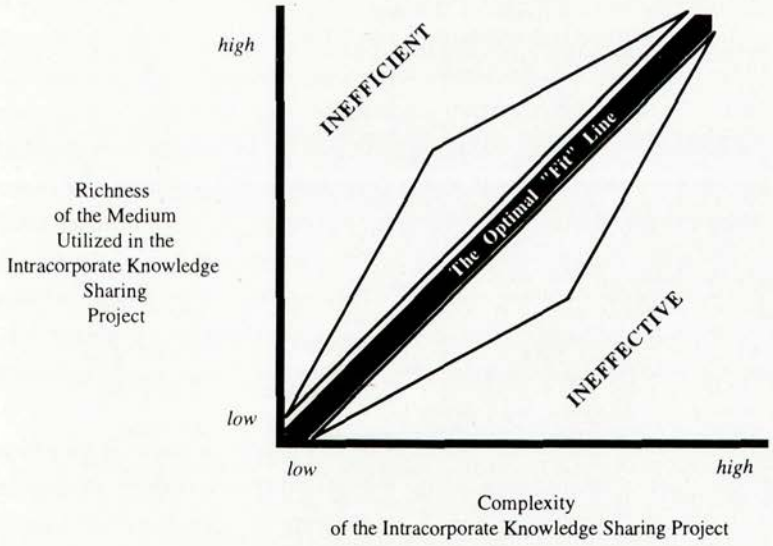


Figure 3.6: Knowledge Sharing Effectuation.

costly if it does not significantly improve the effectiveness of the knowledge application and integration.

The preparation stage is a crucial one in determining the effectiveness and efficiency of an intracorporate knowledge sharing effort. A misfit between the richness of the transfer medium and the complexity of the intracorporate knowledge sharing project will affect the effectiveness or efficiency of the endeavour. One has to acknowledge, however, that large differences exist between the various "sharing" endeavours. As a consequence, some intracorporate knowledge sharing projects will require no preparation at all while in other situations preparations will be needed that will require a lot of time and management attention. The donor takes often the lead throughout the preparation stage because he or she is often better able to make an estimation of the complexity and requirements of the project than the recipient. .

Although strongly intertwined with the preparation stage and arbitrarily defined, the transfer stage commences when the main decisions on how to effectuate the knowledge transfer have been made and the donor starts to explicate the knowledge item to the recipient. The transfer process may last a few minutes or several years, but is often an interactive process between acceptor and transferor. Consequently, it may be essential that the parties involved develop a team spirit and a strong commitment to the project. Both parties must understand that the intracorporate knowledge sharing project will be successful only if they work together as a team and are committed to team success. Moreover, because we are dealing with an evolutionary process with many different decision points, it is important that management on both sides stays abreast of the action. Management needs to monitor progress, ensure that objectives remain clear, negotiate when necessary, and make decisions in a timely manner.

The transfer stage ends as the recipient takes ownership of the knowledge and the new idea has become an institutionalized and regularized part of the adopter's ongoing operations (Damanpour, 1991; Rogers, 1995). Recipients are normally obliged to devote substantial resources in order to adapt and probably improve upon the original knowledge item (Baranson and Roak, 1985). Without the acceptor taking ownership of the knowledge item at stake the intracorporate knowledge sharing effort will have strong problems in generating the expected added value. The lead in the intracorporate knowledge sharing project must be taken over by the acceptor to ensure that the knowledge item becomes an integral part of the receiving organization. The transferor can only take a support role in this stage of the project and should stimulate the acceptor to promote and effectuate the implementation of the knowledge item. If this does not occur, it is important for management to determine the causes and to intervene immediately because schedule, costs, and benefits will suffer.

The role of a firm's top management in managing the execution phase is limited to a facilitating task. The task to facilitate means the responsibility to influence the degree of success regarding intracorporate knowledge sharing efforts between front-line managers throughout the hierarchy by creating the appropriate conditions for effectuating the transfer and deployment of knowledge in a productive way. Corporate management has two options in

facilitating the effectuation of an intracorporate knowledge sharing project[6]. On the one hand, corporate management could take action with respect to the antecedents of the complexity of the intracorporate knowledge sharing projects (e.g., nature of knowledge, level of trust between the actors) to reduce, at average, the complexity to share knowledge. On the other hand, corporate management could extent the resources and the available transfer media to enable front-line managers to deal with the particular complexity of their intracorporate knowledge sharing project.

3.5 SUMMARY AND CONCLUSIONS

The conceptualization of the knowledge sharing process, as presented and discussed in this third chapter, has resulted in an organizing framework which categorizes the factors influencing the process of intracorporate knowledge sharing to be reviewed in the next two chapters. The process analysis assists us in synthesizing of what we know and delineating what else we need to create a more complete picture on the issues surrounding managing intracorporate knowledge sharing. For managerial reasons, a line has been drawn between the phases of decision and execution within the intracorporate knowledge sharing process. The decision phase comprises an awareness and an interest stage. Management of the decision phase determines the number of times that an attempt is made to share knowledge (the Quantity Determinant). The execution phase consists of a preparation and a transfer stage. Management of the execution phase influences the efficiency and effectiveness of the knowledge transfer effort and hence the added value of the knowledge sharing initiative (the Value Determinant). Combining the quantity and value determinant, one is able to approximate the actual total value created by intracorporate knowledge sharing.

Top and front-line management each have their own contribution to make to intracorporate knowledge sharing. While front-line management is accountable for both the initiation and effectuation of knowledge transfer efforts, top management has only an indirect role to play. Due to the prevailing complexity in most multinational enterprises (Doz and Prahalad, 1991), top management has to limit its managerial role to the stimulation and facilitation of intracorporate knowledge sharing efforts. As Bartlett and Ghoshal (1995: 140) argue, "...unlike capital, knowledge is most valuable when those on the front lines control and use it." The task to stimulate consists of the attempt to enlarge the number of knowledge sharing initiatives by influencing the decision-making process of those employees lower down the hierarchy to participate in the supply, reception, and application of internally available knowledge. The task to facilitate represents the effort to influence the successfulness of the intracorporate knowledge sharing projects between managers throughout the hierarchy by creating the

---

6 These preliminary conclusions evolve into well-founded propositions in the fifth chapter where barriers in the execution phase of the intracorporate knowledge sharing process are described and the prerequisite management systems to remove or reduce them proposed.

Phase in IKS Process / Management Level	**Decision Phase** *Influencing the Quantity Determinant*	**Execution Phase** *Influencing the Value Determinant*
Front-Line Management	Task to INITIATE	Task to EFFECTUATE
Top Management	Task to STIMULATE	Task to FACILITATE

Table 3.1: Different Roles regarding Intracorporate Knowledge Sharing.

appropriate conditions for effectuating the transfer and deployment of knowledge in a productive way.

Based on a managerial categorization of the barriers to intracorporate knowledge sharing, the next two chapters present detailed propositions regarding the management tools which a firm's top management can and should implement in its responsibility to stimulate and facilitate the leverage of a multinational's internationally scattered knowledge resources. Chapter 4 focuses on the barriers and management systems related to the decision phase, while Chapter 5 details the barriers and management systems in the execution phase.

4

Management Systems that Remove and Reduce the Barriers to Initiation

The Decision Phase

"A general theory of administration must include principles of organization that will insure correct decision-making, just as it must include principles that will insure effective action."

- Simon (1976: 1).

4.1 INTRODUCTION

Intracorporate knowledge sharing could be conceptualized as being influenced by both obstacles and spurs (see Table 4.1). Obstacles inhibit the initiation and effectuation of intracorporate knowledge sharing efforts, while spurs stimulate and facilitate them. Both the negative and positive effects on the intracorporate knowledge sharing process have been widely investigated before and numerous lists of determinants can be found in the literature. Instead of discussing all the factors involved in a commingled way, the aim of deductive reasoning necessitates the more focused effort of creating a managerial categorization of the barriers involved. Apart from the fact that obstacles and spurs can often be brought back to the same underlying phenomenon, the obstacles restrain the intracorporate knowledge sharing process and hence, from a corporate management point of view, should be eliminated or reduced to smooth the initiation and effectuation of knowledge transfer efforts by front-line managers lower down the organizational hierarchy. By detecting where and how the various deterrents affect the leverage of internally available knowledge items, conclusions can be drawn on the critical managerial responsibilities and the management systems for stimulating and facilitating intracorporate knowledge sharing. By eliminating and reducing the barriers to initiation and effectuation wherever possible, corporate management tends to increase the total value created by intracorporate knowledge sharing and hence the corporate value generation by means of the leverage of internal knowledge resources.

Influence on IKS Process \ Phase in IKS Process	**Decision Phase** *Influencing the Quantity Determinant* (Chapter 4)	**Execution Phase** *Influencing the Value Determinant* (Chapter 5)
Obstacles	Barriers to Initiation	Barriers to Effectuation
Spurs	Stimulators to Initiation	Facilitators to Effectuation

Table 4.1: Typology of Factors Influencing Intracorporate Knowledge Sharing.

This fourth chapter focuses on factors influencing the initiation of knowledge sharing efforts (see Figure 4.1), while the next chapter emphasizes the issues surrounding the effectuation of knowledge transfer initiatives. The decision phase of the intracorporate knowledge sharing process, as conceptualized in the previous chapter, comprises an awareness and an interest stage. On the face of these stages, it has been concluded that before knowledge can be shared, its existence and redeployment possibilities must be known by the knowledge donor or the potential recipients. Moreover, corporate management has to make sure that the front-line manager's decision criteria concerning the willingness to participate in such a knowledge transfer effort are in line with the objectives of the firm at large. Building upon the process analysis and provoked by these preliminary conclusions, the barriers obstructing the initiation of intracorporate knowledge sharing projects in multinationals are further detailed and reviewed in this chapter. As illustrated in Figures 4.1 and 4.2, the barriers to initiation are clustered in two groupings, namely *Awareness Barriers* and *Interest Barriers*. An effort to

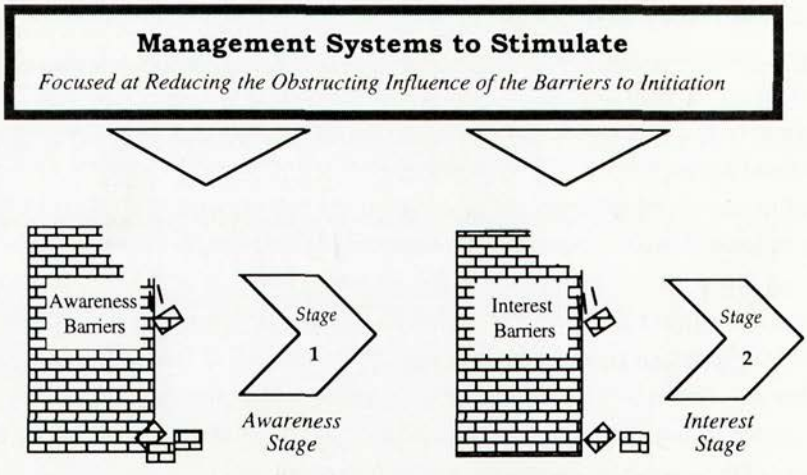


Figure 4.1: Factors Influencing the Initiation of Knowledge Sharing Efforts.

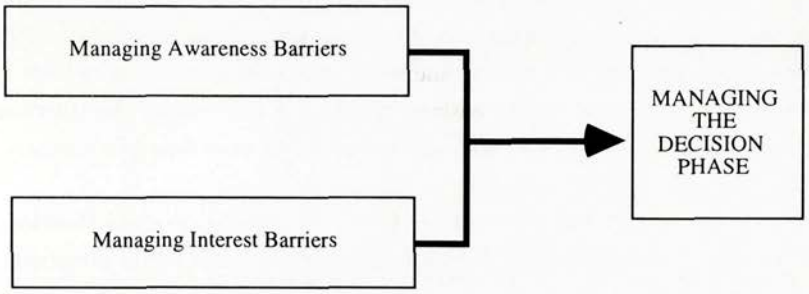


Figure 4.2: Managing the Decision Phase.

transfer and redeploy an internally available knowledge item is only initiated if the front-line managers involved can overcome these awareness and interest barriers to intracorporate knowledge sharing.

When all managers throughout the organization would have perfect and complete information and would agree on the corporation's objectives or desired outcomes, deciding on when, where, and how to share knowledge would be a clear-cut issue. In reality, however, a decision situation with respect to intracorporate knowledge sharing is often surrounded with a lot of fuzziness and uncertainty, and hence necessitates serious attention of a firm's top management. Consequently, the analysis of the barriers, as presented in both section 4.2 and 4.3, is utilized as a means to investigate the required management systems for managing the decision phase or, in other words, the management actions necessary to at least reduce and eliminate the awareness and interest barriers regarding the initiation of intracorporate knowledge sharing efforts. Based upon an understanding of these barriers, two preliminary propositions are offered regarding the prerequisite management systems for stimulating the initiation of knowledge transfer efforts throughout the organization. In the concluding section of this chapter, we are able to devise the first half of our managerial framework encompassing the factors influencing the intracorporate knowledge sharing process and allowing not only the observation, but also the analysis, understanding, and normative assessment of the tasks and responsibilities within management of the decision phase of the intracorporate knowledge sharing process.

4.2 MANAGING AWARENESS BARRIERS

The only genuine stage in the intracorporate knowledge sharing process is becoming aware of an opportunity to share a knowledge item with a colleague within the firm at large. Before a particular knowledge item can be leveraged, a supplier or recipient must be found. It is far too simple to belief that the process of giving and taking knowledge just boils down to finding the

right supplier (Bidault and Fischer, 1994). Indeed, in many occasions knowledge sharing opportunities remain unexploited due to the inability to detect the transferors or potential acceptors of available business solutions (Allen, 1977; Allen, Tushman and Lee, 1979; Van Geenhuizen, 1993). One reason is that the knowledge donors lack the modes to identify their colleagues receptive to review existing business solutions or information. The other reason is that those eager to evaluate available skills and know-how to solve their own business issues cannot detect the appropriate knowledge items and their location.

Unable to inform their front-line managers on all opportunities to share knowledge and establish the linkages between them, corporate management must, in its stimulating task, remove and reduce the prevailing awareness barriers to ensure that employees throughout the firm become aware of increased possibilities to share valuable knowledge items. This section deals with how corporate management can cope with these awareness barriers and proposes to implement a *Knowledge Sharing Awareness System* as a stimulator to initiation. Building on a comprehensive review of the prevailing awareness barriers as will be presented in the following section, section 4.2.2 discusses ways for corporate management to give content and form to a knowledge sharing awareness system in its attempt to eliminate and reduce the existing awareness barriers.

4.2.1 Origins of Awareness Barriers

Awareness barriers are deterrents obstructing front-line managers to detect opportunities to share knowledge within the boundaries of the enterprise. Awareness barriers cause a passive rejection (Eveland, 1979), meaning that the adoption of a particular knowledge item is never accomplished because its use is never really considered. "Organizational units with potentially synergetic information," as argued by Huber (1991: 101), "are often not aware of where such information could serve, and so do not route it to these destinations. Also, units which might be able to use information synergetically often do not know of its existence or whereabouts." Consequently, it is surprising that the process of how those who possess nonroutine information and those who need this information find each other is relatively unstudied. If we want to learn why so many valuable knowledge items remain unexploited, we need to pay serious attention to the numerous awareness barriers blocking the conversion of highly interesting knowledge sharing prospects.

Many reasons can be discerned, as depicted in Figure 4.3, why organizations frequently do not know what they know. A first factor effecting the variations in awareness is related to the nature of knowledge. With respect to the nature of knowledge, Polanyi (1966: 52) argues that a distinction can be made between encoded and tacit knowledge and that "... the indefinable knowledge is [...] an essential part of technology". Knowledge is often embedded in the activities, habits, and automatic responses of key people throughout the organization. The knowledge that can be articulated and thus transmitted in formal, systematic language

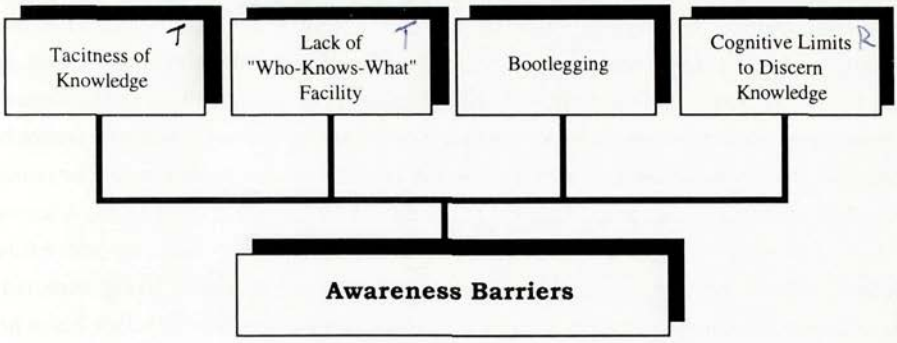


Figure 4.3: Factors underlying Awareness Barriers.

constitutes just a small part of our entire body of knowledge and this observation makes Polanyi (1966: 4) conclude that "...we can know more than we can tell". The major part of our knowledge reservoir is tacit knowledge which in many cases remains difficult to abstract and hence extremely hard to locate and exploit (Polanyi, 1966; Itami, 1989; Levitt, 1991; Nonaka, 1994). The factor that makes knowledge, in Von Hippel's (1994) terms, "sticky" and hence strategic because it makes knowledge difficult to imitate by competitors, also makes knowledge more difficult to leverage intentionally.

A second reason why a firm's employees may have problems to trace opportunities to leverage internally available knowledge can be related to the lack of a tool or facility (e.g., information system, liaison roles, informal network) which, as Boynton (1993: 62) argues, "allow managers within the organization to rapidly develop, gather, store, and disseminate information across all boundaries about markets, products, or process capabilities." Still too often, corporations lack systems and procedures designed to be dynamically responsive for managers who have a need to know. While information for planning or reporting purposes is often stored in a systematic and well organized manner nowadays with the help of systems that routinely index and store "hard" information, the more conceptual and "soft" information is only rarely registered and gets lost as a result of specialization, differentiation, and departmentalization (Huber, 1991: 106). Knowing where knowledge resides with the help of a "who-knows-what" facility is important for effectively managing and exploiting knowledge (Bohn, 1994). Without being aware of the available knowledge and knowledge application opportunities within the corporation, the intracorporate knowledge sharing process will never onset. Without knowing who to contact for a distinguished knowledge "gap" or being informed about an existing knowledge need inside the corporation, both knowledge recipients and donors are unable to find their way throughout the corporation and establish cooperative relationships with their colleagues to leverage the firm's knowledge base.

A third reason why it could be difficult to trace intracorporate knowledge sharing prospects is related to the donor. The donor can have personal reasons not to explicate and communicate

his or her knowledge exploration results to colleagues and superiors inside the corporation, a phenomenon called "bootlegging" by Bright (1967). Causal ambiguity related to the knowledge item is one of the possible reasons underlying bootlegging behavior in an organization. Causal ambiguity occurs, following Rumelt (1984: 562), if all the implications of the knowledge and the precise reasons for success or failure for solving a problem cannot be determined. Due to the uncertainty surrounding the knowledge item, managers can be scared and hence not willing to diffuse the knowledge because of the threat of public scorn. A second rationale underlying bootlegging is the potentially damaging nature of particular information to the party who is supposed to supply it. Confessions of failure are hardly likely, especially when some sort of punishment may result. A final reason for the donor to hold back his or her knowledge is the lack of authorization. Business unit management sometimes initiates exploration activities deliberately without consultating of the firm's headquarters. Front-line managers are often irritated by corporate procedures for certain business and investment decisions which strongly restrict the flexibility of their business strategy. By neglecting the reporting procedures, time advantages can be won but secrecy of the activities must be kept for a while. During this period, however, the knowledge depreciates and is probably reinvented by managers of related subsidiaries.

A final argument underlying the existence of awareness barriers within organizations is that the perception and prior knowledge of the parties involved can obstruct the valuation and hence the detection of opportunities to leverage available knowledge. "A more realistic view of innovation should begin with an appreciation of the physiological limitations of human beings to pay attention to nonroutine issues, and their corresponding inertial forces in organizational life," Van der Ven (1988:594) argues. People are limited in their search process to new solutions based on their current reservoir of knowledge (Aharoni, 1991). A person's own vision on a particular field of study influences his or her ability to appraise the importance of a new invention or bunch of information (Cohen and Levinthal, 1990). As Pennings and Harianto (1992: 30) argue, "... firm's skills cannot be transferred because the current stock of skills focuses the efforts of people in organizations in specific directions. New solutions are similar to or in the neighbourhood of current solutions. On the voyage to new territories we are attracted to what looks familiar to or consistent with what we already know."

Based on the examination of the factors obstructing awareness, it may be assumed that the difficulty to trace and locate intracorporate knowledge sharing opportunities is negatively associated with the initiation of intracorporate knowledge sharing projects. Consequently, with respect to the responsibility of a firm's top management to stimulate intracorporate knowledge sharing, the following proposition was formulated:

Proposition (P1):

The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects.

The management system which makes employees aware of intracorporate knowledge sharing prospects and hence removes and reduces the awareness barriers to initiation is called the *Knowledge Sharing Awareness System*. Based on the scrutiny of the deterrents to awareness in this section, the following section enumerates the alternative tools of such a knowledge sharing awareness system.

4.2.2 Toward a Knowledge Sharing Awareness System

Critical for the conversion of knowledge sharing prospects, as argued in the preceding section, is the awareness of the locus of useful expertise and market knowledge throughout the organization. Front-line managers must be capable to detect who knows what, who can help with what problem, and who can redeploy existing knowledge items (Szulanski, 1995). Corporate management in its responsibility to stimulate can and should assist managers lower down the hierarchy to cope with the awareness barriers to intracorporate knowledge sharing. On average, the awareness stage would come more often into effect throughout the organization if a firm's top management is able to remove or reduce the prevailing awareness barriers. Knowledge donors and possible recipients need to be able to discern the opportunities to leverage internally available knowledge and it is posed that a *Knowledge Sharing Awareness System* could help (see Proposition P1). As Boynton (1991: 63) argues, "Product managers responsible for meeting product demand must be able to anticipate and respond to product change quickly by identifying what know-how and process capabilities are available within the firm."

A knowledge sharing awareness system focuses on the reduction and elimination of the obstructing influence of the awareness barriers (see Figure 4.4). As a conceptual construct,

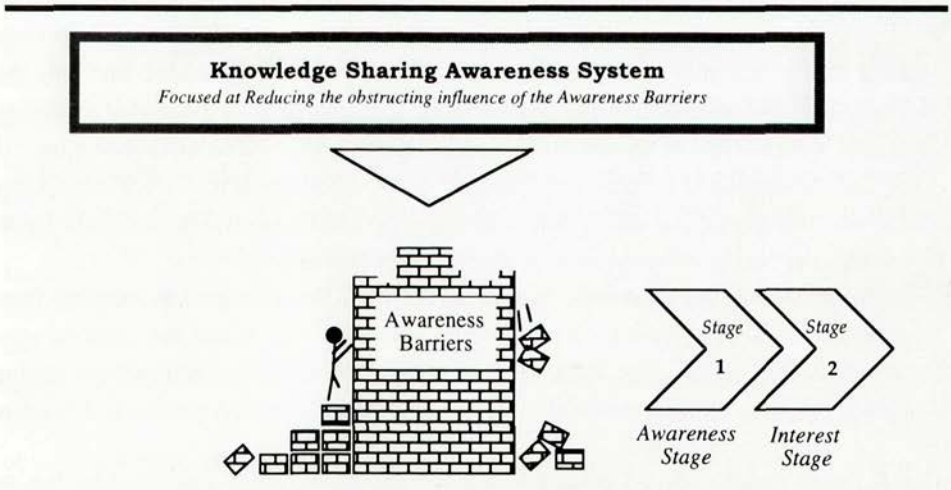


Figure 4.4: The Function of a Knowledge Sharing Awareness System.

THE KNOWLEDGE SHARING AWARENESS SYSTEM

A Set of Management Tools

A Knowledge Sharing Awareness System can be given form and content by using one or more of the following management tools. The most suitable set of tools for a particular firm and the best way of implementing them are supposed to be situation-specific.

(1) KNOWLEDGE CODIFICATION, REGISTRATION, AND STORAGE

Putting an incentive on the codification and/or registration of existing knowledge to facilitate the communication and detection of knowledge

(2) NETWORKING INTRACORPORATE KNOWLEDGE SOURCES & ADOPTERS

Corporate management can shape or accomodate the development of a network (e.g., an electronic information spider web, formal or informal interrelationships) to link all of the firm's employees

(3) ASSIGNING KNOWLEDGE EXPLORATION RESPONSIBILITIES

Transparency can be created with respect to the locus of existing knowledge by assigning development responsibilities to temporary development projects or permanent expertise centers

(4) INSTITUTIONALIZING KNOWLEDGE SHARING INTERMEDIARIES

Intermediating bodies can be institutionalized. "Teachers" for the collection and diffusion of best practice. Liaisons for the mediation between knowledge donors and recipients

(5) IMPLEMENTING INTERNAL BENCHMARKING PROCEDURES

Implementing a systematic assessment procedure to benchmark the subsidiaries internally in search for best practices in particular areas and to collect hard proof on improvement opportunities

Exhibit 4.1: Management Tools of a Knowledge Sharing Awareness System.

however, a knowledge sharing awareness system is not directly observable in practical settings and hence has to be defined on the basis of observable management tools (see Exhibit 4.1). Five tools described and discussed in the remainder of this section are the most representative spurs presented in the literature with regard to awareness[1]. By linking these management tools with the factors underlying the awareness barriers (see Table 4.2), we learn that only the "bootlegging" phenomenon remains unaffected by the main parts of a knowledge sharing awareness system. The discussion on the management tools related to "bootlegging" is deliberately postponed to circumvent duplication in the underlying text. A knowledge donor who is unwilling to explicate and communicate his or her knowledge exploration results has to be persuaded and the next section particularly deals with this issue

A knowledge sharing awareness system assists front-line managers in drawing from organizationally accumulated know-how by providing tools to locate the intracorporate knowledge sharing opportunities within the firm at large. The strength of a knowledge sharing awareness system to decrease the obstructing influence of the awareness barriers is dependent

[1] Although the extent to which a management tool is representative remains somewhat subjective, its representative nature has been verified by logical reasoning based on the factors underlying the awareness barriers and early checks and pilot studies in practical settings.

Factor underlying Awareness Barriers / Tools of KS Awareness System	Tacitness of Knowledge	Lack of "Who-Knows-What" Facility	Bootlegging	Cognitive Limits to Discern Knowledge
Knowledge Codification, Registering, and Storage	X			
Networking		X		
Assigning Knowledge Exploration Responsibilities		X		
Institutionalizing Knowledge Sharing Intermediaries		X		
Implementing Internal Benchmark Procedures				X

Table 4.2: Matching Tools and Factors underlying Awareness Barriers.

on its degree of development. In boosting the degree of development of such a management system, a firm's top management can rely upon a number of mechanisms (see Exhibit 4.1). Top management can give content and form to a knowledge sharing awareness system by using one or more of the following means: first, incentives can be put on the codification, registering, and storage of existing expertise and information on the business environment; second, networks can be shaped or its development accommodated to provide the necessary vector for information exchange; third, clarity can be created with respect to the locus of existing knowledge by assigning development responsibilities to specialized expertise centers; fourth, intermediaries can be institutionalized, and finally, top management can institutionalize systematic benchmark procedures to register and detect best-practice levels throughout the firm.

TOOL #1: KNOWLEDGE CODIFICATION AND ARTICULATION

Without any doubt, the major part of the available knowledge in an organization resides exclusively in the heads of its employees (Polanyi, 1958). Although it can be transferred to some extent via education, training programs, and donor-accompanied trial and error activities, human-embodied knowledge is difficult to find and hence very complicated to exploit. Consequently, one of the actions corporate management can take in its attempt to reduce the awareness barriers is putting an incentive on the codification, registering, and storage of existing knowledge within the organization (Davis, 1986; Von Hippel, 1994). Natural memory can be supplemented with artificial aids like documents, manuals, and computer memory (Arrow, 1971) through the codification and registering of existing skills, capabilities, and know-how. Hedlund (1994) calls the process during which tacit knowledge is being made explicit *knowledge articulation*. He argues that "The current, and justified, fascination with the tacit component of knowledge in much of the literature must not cloud the fact that organizations to a large extent are "articulation machines", built around codified practices and deriving some of their competitive advantages from clever, unique articulation. In fact, much of industrialization seems to have entailed exactly the progressive articulation of craftsmanlike skills, difficult but not impossible to codify" (1994: 76).

Therefore, a firm is able to document the codifiable knowledge residing throughout the organization. By articulating skills and know-how, it becomes possible to fully convey the knowledge by communication alone and this improves the communicability of knowledge significantly and hence the detection of knowledge transfer opportunities. As Winter (1988: 171) states: ""Fully articulatable knowledge can be communicated from its processor to another person in symbolic form, and the recipient of the communication becomes as much 'in the know' as the originator." Hedlund and Nonaka (1993: 126) argue that "Knowledge articulation is a crucial process since it significantly increases the potential for critique, testing and for sharing through transfer of knowledge."

Boisot (1983: 163), however, warns for obstacles which stand in the way of effective codification of knowledge. He argues, for example, that "abstracting from experience can be done in an almost infinite number of ways... the choice of what to codify and how to codify ... remains intensely personal even if it admits of outside influences". "The objects of our perception and experience are constructed out of the flux of sensation to which we are continuously being subjected by our selecting their most representative states or attributes - those that is, which we are most familiar with - as a basis for their classification" (pp. 162-163). Although yielding very useful knowledge, the routines of a ballet dancer, for example, would be very difficult to codify. Each and every ballet dancer would stress other facets of their experience for emphasis and hence the same experience would be codified in different ways by different ballet dancers.

Being fearful that the codification of knowledge increases competitor imitation is understandable, but Zander (1991) shows quite convincingly that this relation does not need to exist. Another danger of knowledge abstraction, however, is that it can increase the bureaucracy of an organization. By producing whole packages of descriptions of organizational procedures, skills, and capabilities, the organization can become reluctant to change and lose some of its flexibility. Consequently, if codification of the content of the knowledge item seems impossible, too dangerous, or too costly, one can decide to register the available skills and capabilities without codifying its nature. By registering the available "practices", colleagues can, at least, become aware of the existing know-how and experience existing throughout the corporation. As the recipient is willing to participate in a series of trial performances of the skill and to attend to the teacher's critique of the errors made in these trials, even the not articulatable knowledge can often be transferred (Winter, 1988). The ballet dancer, for example, can teach her students ballet dancing gradually by observing and giving comments upon their trial and error activities. Being vulnerable for this kind of critique, however, the recipient can learn the required skill much faster relative to what would be required by the pupil proceeding on trial and error alone.

TOOL #2: NETWORKING

Awareness requires more than the codification and registering of available knowledge. Within the boundaries of the multinational enterprise, knowledge is scattered over the firm's

subsidiaries and valuable knowledge can emerge everywhere. Consequently, more and more authors stress that the creation of a network linking knowledgeable employees throughout the corporation is one of the prerequisite steps to leverage internally available knowledge (e.g., Rogers, 1983; Peters, 1994; Robertson, Swan, and Newell, 1996). Networks provide the necessary vector for information exchange and "we must understand the nature of networks if we are to comprehend the diffusion of innovations fully" (Rogers, 1983: 293). Bob Buckman, head of Buckman Labs, a successful innovative specialty chemical company, adds to this that the network should connect everybody to each other within the organization. "If you don't let the person on the front line, who is generating the cash flow for the company, have the same connectivity as the CEO, you don't have the connectivity necessary to strategically leverage knowledge," Buckman told Tom Peters (Peters, 1994: 168).

"An important characteristic of networks," as stated by Camillus (1993: 316), "is that they recognize and emphasize the different competences of individuals in an organization but largely disregard hierarchical structures in terms of who relates to whom. [...] Networks emerge to take advantage of the differing capabilities, knowledge, resources, perspectives, and locations of their individual participants." Networks are unbounded or bounded clusters of organizations that "constitute a basic social form that permits interorganizational interactions of exchange, concerted action and joint production" (Alter and Hage, 1993: 46). Networking refers, therefore, to the activity of creating or maintaining this kind of organizational exchange. Organizations may engage in informational collection and exchange in order to reduce risk or uncertainty, or to share expertise. Networks allow information to be communicated across organizational boundaries (Robertson, Swan, and Newell, 1996) or, in Rogers' terms, across social "cliques."

Networks can be divided into electronic and interpersonal variants. Nowadays techno-experts and organization scientists stress the implications of advanced information technologies on knowledge and information processes (Huber, 1991; Scott Morton, 1991; Martins, 1994). "Intranets" like Lotus Notes and Novell's Groupwise help people access, track and share information like never before. With an advanced and extensive communications infrastructure in place, spontaneous lateral communication opens up new avenues for knowledge sharing in multinational enterprises. Storage technology has expanded the amount and changed the nature of stored knowledge readily accessible to organizations (Yates and Benjamin, 1991). Moreover, existing communication technologies give new meaning to concepts of distance which is particularly important for multinational enterprises where both geographical and hierarchical distances are great (Hagström, 1991).

Linking geographically disparate units with computer-aided systems provide a long-term, electronic memory shared by all organization members which can be continuously updated and improved. Goodman and Darr (1996: 9), for example, describe a computer aided system at Office Equipment where contributors of solutions send their ideas to an electronic library where they are reviewed. Those accepted are stored in library. A potential adopter can gain access to the library, review an index cataloging classes of problems and solutions and then

review a specific best practice. When an interesting solution is identified, the adopter can collect further information by consulting corporate staff or the contributor of the best practice. Davenport (1993: 54) enlists three cases in which the goal is to make expert knowledge available across an entire firm. As he describes: "Ford [...] has implemented a global database of process knowledge for producing electronic components that can be easily accessed by any division interested in the experiences of other parts of the organization. American Airlines is attempting to build a database of customer service practices and procedures that can be accessed by customer service representatives at any airport. Finally, a number of Big Six accounting firms [in the USA] have developed networks of information on tax and accounting issues."

Electronic "search engines" maintain reservoirs and conduits of information about all kinds of problems and solutions to problems employees have encountered. Although still lacking in most corporations, one can expect that such an electronic filing system which registers internal capabilities, skills, experience and information will improve the search process for knowledge sharing opportunities dramatically. Apart from the dramatic improvement of the search process for well-defined knowledge needs, scanning such a system regularly can expose operating managers to large amounts of valuable knowledge for which they would not have defined a need in advance.

Despite what the techno-experts might tell, however, knowledge management is not primarily a bits-and-bytes issue. For example, as described by Peters (1995: 168), some 17,000 consultants and accountants at Price Waterhouse are using the Lotus Notes application. Although Notes is state-of-the-art software, people at Price Waterhouse are not using it so far in a very interesting way. The success of such an information system depends on the capability of the "librarian." Strict rules concerning definition and format will determine the use of such a system. Moreover, appropriate filters are needed to prevent employees becoming demotivated due to the information overload with which they are confronted. For these applications to have value, the users have to be motivated to fully exploit their latent power. Electronic networks, however, are only one tool supporting the creation and development of an organizational network for linking knowledge donors and recipients.

"While mass media," as Arrow (1991: 33) argues, "play a major role in alerting individuals to the possibilities of an innovation, it seems to be personal contact that is most relevant in leading to its adoption." Formal and informal organizational interrelations can form the basis for personal contact between a firm's employees and hence for their search for opportunities to leverage the internally available knowledge. Various studies (Morton, 1971; Allen, 1977; Tomlin, 1981) have indicated that if one wants to stimulate communication and interaction between employees one has to join them by an organizational bond or create organizational linkages. Existing formal coordinative arrangements, however, are not always able to manage interdependencies effectively which is due to the potentially damaging nature of particular information. Informal channels, instead, by their typical clandestine nature and foundations of reciprocity and mutual trust, provide appropriate means for surmounting problems associated

with formal channels of communication. Consequently, many authors have pointed out the importance of informal flows of information (Zuboff, 1988; Chisholm, 1989; Fleck, 1996; Macdonald, 1996).

The strengths of the informal systems lies in their problem-oriented and pragmatic nature. They are self-organizing in the sense that they respond to the effects of experience rather than to the a priori demands of organizational designers (Chisholm, 1989). Informal channels also work more rapidly than their formal analogues because of a reservoir of mutual trust between the individual involved. A principal characteristic of the informal network is that value is accorded specific to the individual rather than attached to the position occupied. Unlike the formal organization where individuals are valued on the basis of their education, experience, and performance, individuals in the informal system are valued on the basis of their knowledge and skills. Linkages are initiated on an as-needed basis and have proved surprisingly flexible and adaptive as devises for informing colleagues about available knowledge.

Informal coordination mechanisms can not be used independent from the informal counterparts. No organization can rely on a single one of these mechanisms. All organizations have to search for the right balance between these two mechanisms, dependent on the organization's situation. The type of coordination used in the organization is a function of the extent to which the situation is standardized. The more stable and predictable the situation, the greater the reliance on coordination by formal arrangements; the more variable and unpredictable the situation, the greater the reliance on informal processes within the organization. Although less certain, the informal processes are the only means that can be relied upon under extremely difficult circumstances (Mintzberg, 1979).

TOOL #3: ALLOCATING KNOWLEDGE DEVELOPMENT RESPONSIBILITIES

Instead of enforcing employees throughout the corporation to find their way to scattered and often ill-defined knowledge sources, corporate management can create more transparency by assigning development responsibilities to temporary taskforces or permanent expertise centers. By defining the locus of the development work in a particular area, more insight can be provided in what places various types of knowledge reside. We refer here to situations in which a subsidiary, team, or organizational unit gets authority, ability, and autonomy to define and serve knowledge development needs beyond the local context (Surlemont, 1994). These taskforces or expertise centers can become highly visible experts in the organization and, in this way, significantly reduce the confusion with respect to "who-to-contact" problems on particular issues. Moreover, competent innovators with complementary knowledge sources can be brought together in these expert groups or competence centers which contributes to the quality of the development work.

Temporary development projects are often defined and organized around the objective of creating a particular new product, service, or process, but can also be used to develop less tangible assets. These assets might include new approaches or methodologies for inventing and

designing products or new machines and systems for producing them. On a more subtle level, assets might also include the development of new individual skills and organizational capabilities. Achieving an appropriate performance with respect to the output of development work and its exploitation throughout the organization requires more than simply naming members and designating a project head (Clark and Wheelwright, 1993; Thomas, 1995). Given a good development concept, a team, and the necessary resources as a starting point, Bowen, Clark, Holloway, and Wheelwright (1994) present seven key elements for outstanding development projects, namely (1) full recognition of interaction with core capabilities and core rigidities; (2) guiding visions; (3) the degree to which the performance envelope is pushed; (4) project leadership and organization; (5) ownership and commitment; (6) rapid learning and early testing through prototyping, and (7) the integration within the development project. These seven elements, they argue, when integrated into a holistic approach, become critical elements for success.

A rather new organizational phenomenon in many multinational enterprises is the institutionalization of more permanent development groups in areas like marketing, information technology, and manufacturing. These groups have various titles like Expertise Centers, Lead Centers, Competence Centers, Shared Resource Centers, or Centers of Excellence. They are often created with the intention to reduce duplication of knowledge exploration activities, to combine the best innovators in the organization, to increase the returns on investment in development work, and to reduce costs. Top technical expertise for its members and soft skills for supervisors are absolutely critical for the success of an expertise center. Although complicated by geographical and cultural distance, members of expertise centers must learn to operate closely in line with the needs of consumers and the subsidiaries, and must avoid situations in which the expertise center drifts away and becomes disconnected with the issues and demands concerning the operating level. Moreover, the institutionalization of expertise centers often implies that the related subsidiaries have no other choice than to cut down their development budgets which can lead to major difficulties in the context of organizational politics.

TOOL #4: INSTITUTIONALIZING KNOWLEDGE SHARING INTERMEDIARIES

Another way corporate management can deal with the difficulties of making knowledge sharing opportunities well known throughout the firm is by institutionalizing special knowledge sharing intermediaries. Individuals or teams filling this kind of roles do not generate knowledge[2], but intermediate between the knowledge owner and acceptor by bringing

---

2 It needs to be noted that while the intermediary process is focused on bringing knowledge donors and recipients together, knowledge creation can take place as a side-effect of the intermediary process. As a consequence, the intermediary has to acknowledge this knowledge exploration aspect of his or her activities and exploit those opportunities that arise.

them together. Intermediaries have to be well informed regarding the prevailing knowledge items throughout the organization and capable of translating the contrasting coding schemes of the firm's affiliates. Intermediaries can appear in two conceivable ways, namely as "teacher" or as "liaison". While the teacher collects the knowledge before transfering it again to the "trainees", the liaison only intermediates without retrieving ownership over the knowledge at stake.

The teaching function is, as defined by Lessem (1993: 100), "the imparting of knowledge to individuals by lectures, discussion and practice." A department or person having the responsibility to teach, is made responsible for the collection of best practice with respect to a particular knowledge area (e.g., product, process, business environment) and to convey this knowledge throughout the organization. Information Centers, Knowledge Transfer Centers, or Training Centers are well known terms for these teaching departments. Teaching, however, is a complex task (Heidegger, 1991; French and Bazalgette, 1996) which requires serious management attention. A real teacher will always communicate intensively and openly with both knowledge sources and its knowledge deployers. Moreover, in diffusing knowledge, teachers adapt their learning program to audiences and hence often produce the impression that nothing is learned from them. The teacher can pass on information by various means like personal advise, workshops, seminars, written manuals, and electronic databases. Electronic databases into which the corporation's employees can log via remote connections are becoming more advanced and user-oriented these days and hence can be more of interest for training purposes.

If the abstraction or collection of internally available knowledge is too costly (getting consensus on knowledge abstractions can be a very time-consuming business) or too risky (when knowledge becomes more vulnerable to leaking to unintended sources), an alternative solution for bringing employees with a knowledge problem to possible sources of information is appointing liaison members. Liaison members, and the related roles of gatekeepers (Allen and Cohen, 1969; Keller and Holland, 1975; Tushman, 1977; Macdonald and Williams, 1994), are employed to mediate the transfer of knowledge. They may act as key nodes in the knowledge network, bridging knowledge sources to other areas in the organization. As Robbins (1989: 385) defines, a liaison role refers to "individuals with specialized roles designed to facilitate communication between two interdependent work units." In terms of managing the awareness barriers in the intracorporate knowledge sharing process this means that the liaison establishes the contact between a knowledge donor and a party who is or should be interested in the knowledge item possessed by the donor.

The major drawback of these mediating bodies, however, is that there are limits to their ability to handle information (Arrow, 1991), especially when the group is large and responsibilities are broadly defined. Differentiating the teachers and liaisons based on specialized product, process, or regional areas (e.g., Product Leaders, Process Leaders) could improve their view and their ability to detect knowledge leverage prospects. In this respect it is interesting to note that the intermediating role can be one of the main triggers behind setting up

a regional headquarters (Lasserre, 1996). A regional headquarters can be a mode to bridge the global network to the regional operations and to limit the scope of the intermediary's responsibility in geographical terms. Discerning opportunities to transfer from one work-unit to another requires an excellent perspective on the concerns and views of the individual companies, a "helicopter view" which is often not achievable on a global level. Moreover, a regional intermediating body is better able to personalize and adapt its mediating task to the specific needs of the knowledge recipient and hence enlarge the likelihood of adoption.

TOOL #5: IMPLEMENTING INTERNAL BENCHMARKING PROCEDURES

Finally, corporate management can significantly reduce the awareness barriers by mandating a regular and systematic procedure to benchmark the affiliates. As has been argued in the discussion on awareness barriers, a realistic view on knowledge adoption processes should begin with an appreciation of the physiological limitation of human beings to pay attention to nonroutine issues (Van der Ven, 1988). People are limited in their search process for new ways of doing things by their current reservoir of knowledge (Aharoni, 1991). A benchmark of a firm's subsidiaries is a device to identify best practice levels throughout the firm. By benchmarking the firm's subsidiaries, hard proof can be collected on improvement opportunities to show front-line managers, often in numerical terms, the value of a particular knowledge item and how to circumvent a passive rejection by potential knowledge recipients (Eveland, 1979).

Benchmarking is a systematic process of searching for best practice, innovative ideas, and effective operating procedures, ranging from looking at "simply the best" to extremely complicated measurement techniques. Benchmarking is based on the idea that no individual, team, or operating unit - no matter how creative or prolific - can possibly parent all innovations. The goal is to boost the learning process in the individual subsidiaries by adopting the best practices of colleagues. It is, as defined by Ettinger (1995: 33), "the practice of being humble enough to admit someone else is better at something and being wise enough to try to learn how to match and even surpass them at it." Benchmarking is commonly perceived of as looking outside the boundaries of the firm for best practice, but could also be effectuated within the firm.

Three distinct types of benchmarking are proliferated by Bogan and English (1994), namely process benchmarking, performance benchmarking, and strategic benchmarking. Process benchmarking focuses on discrete work processes and operating systems (e.g., customer complaint process, the billing process) and seeks to identify the most effective operating practices from many companies that perform similar work functions. Performance benchmarking enables managers to assess their competitive positions through product and service comparisons. Finally, strategic benchmarking examines how companies compete and attempts to identify the winning strategies that have enabled high-performing companies to be successful in their marketplace.

Benchmarking can be applied to virtually every function in the corporation and can therefore be very powerful in the detection of intracorporate knowledge sharing opportunities. It is very important, however, to remember that when analyzing the information, a crucial factor is to compare like with like or, in other words, "apples with apples." Internal benchmarking is a politically sensitive activity and hence should be effectuated with a lot of care (Camp, 1995; Zairi, 1996; Fisher, 1996).

4.3 MANAGING INTEREST BARRIERS

Many managers still think that the process of giving and taking knowledge just boils down to distributing information on the existing knowledge sources and their whereabouts. Ideally, the knowledge sharing awareness system, as presented in the previous section, provides tools to determine the general state of the firm's knowledge reservoir, to detect the particular companies studying or controlling the required "package of intellectual property," and to facilitate the search for knowledge employment possibilities. After an intracorporate knowledge sharing opportunity has been detected, however, both the donor and acceptor must pass numerous stages successfully before the knowledge item is transferred and integrated into the operations of the receiver. Knowledge donors and recipients will try, after becoming aware of a knowledge sharing opportunity, to find out whatever additional details and information is obtainable on this undertaking, and to evaluate whether it is beneficial to be involved in the first place.

Many barriers, economic or social, can hinder one or both actors in their willingness to participate in the exploitation of a particular knowledge item. These barriers to initiation are called *Interest Barriers* and should be overcome before the knowledge donor and recipients agree upon the initiation of a knowledge transfer effort. In line with the argumentation in the previous section, we commence this section with an enumeration and analysis of these barriers (Section 4.3.1) and deduce some conclusions on the alternative actions available for a firm's top management to remove and reduce them (Section 4.3.2). In managing the interest barriers, we propose that corporate management has to implement a *Knowledge Sharing Persuasion System*, as a stimulator to initiation. Such a management system needs to ensure that the front-line manager's decision criteria concerning the willingness to participate in a knowledge transfer effort are in line with the objectives of the firm at large.

4.3.1 Origins of Interest Barriers

Various researchers have investigated the decision-making process regarding the adoption of knowledge items. Notwithstanding some challenging contributions (e.g., Abrahamson, 1991), the perspective that rational adopters make independent and technically efficient choices still

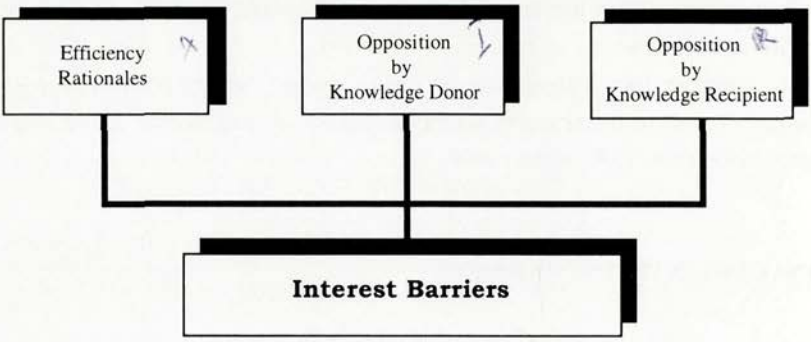


Figure 4.5: Factors underlying Interest Barriers.

dominates this literature. Explanations guided by what Abrahamson calls the "efficient-choice perspective" assume that managerial choices should mostly be influenced by considerations related to efficiency and hence trade-offs between costs and benefits related to the decision. Apart from efficiency rationales the adoption decision will be influenced by personal rationales of both the transferor and the acceptor of the knowledge item[3]. Consequently, three factors were distinguished as underlying the interest barriers, namely efficiency rationales, opposition by the knowledge donor, and opposition by the knowledge recipient (see Figure 4.5).

The efficiency trade-off attempts to put a money value on the tangible and intangible costs and benefits related to the initiation and effectuation of a particular intracorporate knowledge sharing project. As some researchers have pointed out, the resources required to transfer knowledge can be considerable (e.g., Contractor, 1980; Pavitt, 1987). Significant direct costs are attached to the transfer and absorption of knowledge, transaction costs which are too often assumed to be zero or negligible. Different perceptions exist, however, on the costs associated with intrafirm transfers of knowledge (Mansfield, 1975; Teece, 1977). Galbraith (1990) suggests two groups of costs associated with transfer of knowledge, namely the costs associated with "pre-transfer" planning and engineering (e.g., documentation and codification, training) and "post-transfer" management and control (e.g., expatriation of engineers, adaptation costs). Teece (1977: 245/246) identifies four categories of transfer costs: costs of

---

3 In this respect and in line with our conclusions on the influence of the administrative heritage, it is interesting to note that significant variance in the personal considerations could prevail between firms originating from different "triad" regions. For example, while Western managers tend to be individualistic and highly motivated by monetary rewards, Japanese are inclined to place a higher value on things like honor, trust, and personal worth and orientate themselves more strongly on a group level (Whitehill, 1991). These differences have strongly motivated the researcher to select a European, an USA, and a Japanese home-based multinational as case-study object for the empirical research.

pre-engineering technological exchange, costs associated with transferring the process/product design and engineering, costs of personnel during transfer, and pre-start-up training costs and "excess manufacturing costs."

Regarding the determinants of transfer costs, findings by Teece (1981) indicate that transfer costs are higher when the underlying technology is labor intensive rather than capital intensive. Cusumano and Elenkov (1994: 197) and Von Hippel (1994) emphasize the need to take into account what organizations do prior to the transfer process to determine the recipient's absorptive capacity and hence the costs related to the effective deployment of the particular knowledge item. Furthermore, many authors argue that the learning curve phenomenon significantly decreases the transfer costs. Teece (1977) has found that transfer costs decline as a function of the number of transfers already executed for any product. If the knowledge has already been commercialized or developed with widely applicable generic characteristics, transmission may, in some cases, simply involve transferring existing drawings or specifications with a minimum of modification. Customization often necessitates costly redesign efforts requiring the utilization of considerable consulting or advisory resources (Leonard-Barton, 1990a).

Besides an appropriate assessment of the costs, a financial justification process of an intracorporate knowledge project also requires an appropriate calculation of the true benefits following the successful application and integration of the knowledge item in the adopting firm. Like other valuations of intangible assets, however, these gains are very difficult to quantify. Too often companies still apply simple payback calculations based on very narrow criteria in which the more intangible benefits are often excluded. Important intangibles like reduced lead time to market, higher profile with important customers, and flexibility to make product changes, however, can strongly contribute to the competitive success of a company and hence need to be integrated in the summation of the projected benefits. Moreover, it is important to stress that the review of benefits related to an intracorporate knowledge sharing project must also integrate the advantages and gains from a corporate point of view. Harmonizing systems and creating communality between subsidiaries, for example, could be beneficial for a firm's operational integration strategy. Likewise, intracorporate payments to the donor could negatively influence the recipient's trade-off with respect to a particular intracorporate knowledge sharing project, while such actions can be financially beneficial to the corporation as a whole. In that perspective, companies need to use suitable measures to perceive the benefits of new knowledge. Usually, though, they are stuck with traditional measures that by and large are unable to track all the related gains.

Although an intracorporate knowledge sharing project could be attractive from an efficiency perspective, the knowledge donor and recipient could have their own motives to be unwilling to cooperate in the exploitation of the firm's knowledge reservoir. As stated before, intracorporate knowledge sharing is and will always be a human activity. The influence of personal considerations, as depicted in Figures 4.6 and 4.7, are significant and often even more important in shaping the employees' actions than the economically-determined rationales for

intracorporate knowledge sharing. Lawler and Rodes (1976: 22) argue in this respect that "behaviour generally is predictable if we know how the person perceives the situation and what is important to him or her. While people's behaviour may not appear to be rational to an outsider, there is reason to believe it usually is intended to be rational and it is seen as rational by them."

The willingness of the donor to participate in an intracorporate knowledge sharing project could be restrained for several reasons. Assuming the company's responsibility for both its top- and bottom-line, an effort to transfer one's knowledge without returns in terms of a payment, reward, or reimbursement for expenses, will from a subsidiary point of view be highly irrational and hence not interesting. Most managers are still evaluated and rewarded on the basis of certain financial criteria, results, or ratios. An investment in terms of management resources can have a severe negative impact on a donor's bottom line and hence harm its own interest. Only if the donor puts a value on indirect benefits like network building and being appreciated by colleagues and superiors, the donor can appraise its participation in those situations as worthwhile.

The donor can also decide to withhold its expertise and skills for reasons of inter-subsidiary competition. From a knowledge donor's point of view it can be illogical to advance your colleagues with whom you compete in terms of status, budgets, or survival. From such a perspective, it is more profitable to keep your expensive and distinctive systems and processes exclusively for your own well-being. Moreover, information is a politically powerful resource, as emphasized by some network and resource dependence theorists (Pfeffer and Salancik, 1978; Aldrich, 1979). It is valued for the power it bestows (Pettigrew, 1972; Macdonald, 1996). Consequently, managers often maintain and secure their dominance by controlling access to and distribution of this critical source of power and authority (Fukuyama, 1995: 23).

Just like the donor, the recipient can have personal rationales to hinder the initiation of an intracorporate knowledge sharing project. The Not-Invented-Here syndrome, in which firms resist involvement with external inventors as a matter of policy, means that managers neglect

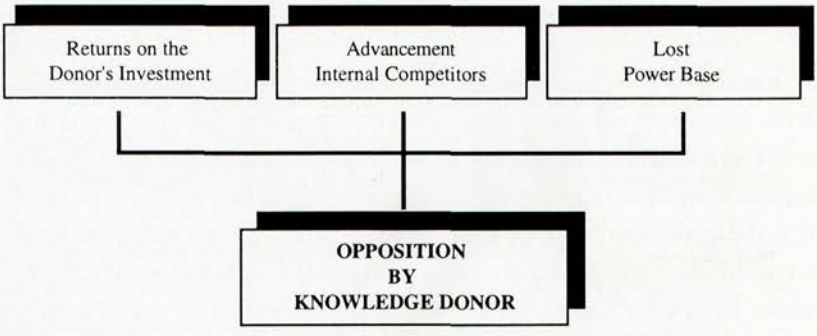


Figure 4.6: Factors underlying the Personal Barriers of the Knowledge Donor.

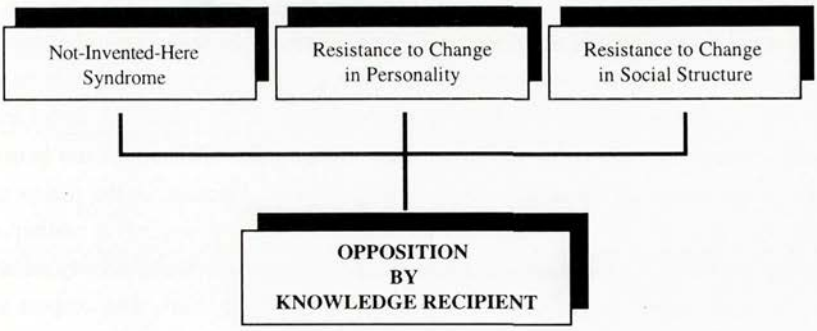


Figure 4.7: Factors underlying Personal Barriers of the Knowledge Recipient.

or are very sceptical about knowledge which is developed by other units (Allen, 1977; Macdonald, 1986). The Not-Invented-Here syndrome is defined by Katz and Allen (1977) as the tendency of a group of stable composition to believe it possesses a monopoly of knowledge of its field, which leads it to reject new ideas from outsiders to the likely detriment of its performance. Once again intersubsidiary competition in terms of status, budgets, or survival could be the driving force behind the resistance of the recipient. The urge to be seen as an advanced and leading company makes it prefer to develop knowledge on their own or collect it from an external source. Comparatively more resistance in the adoption of innovations created elsewhere, as empirically verified by Ghoshal and Bartlett (1988), could be expected in corporations where subsidiaries enjoy considerable strategic and operational autonomy. In companies where decision-making authority is highly centralized, "the very dependency of the subsidiary on the headquarters facilitates adoption since the subsidiary has neither the authority nor the capability to resist" (Ghoshal and Bartlett, 1988: 371).

Another reason for obstructing the adoption of new knowledge can lie in resistance to change (Watson, 1973; Beatty and Gordon, 1988; Johnston and Oman, 1990). A tendency to preserve the status quo in methods of operation based on emotional and political reasons may be present at various levels within an organization. Resistance to change is viewed as a devise that functions to protect the individual against fears and anxieties aroused by the implications of the proposed change. Many authors have argued that learning new methods of work, or using new models and concepts, are likely to be resisted if they are perceived as threatening to one's established orientation and practice. Watson (1973) makes a distinction between resistance in personality and resistance in social structure. Under the former rubric he considers such rationales as the defence of strong vested interests, the need for stability, and the influence of selective perception and retention. Factors in social systems that contribute to the resistance to change are listed as conformity to norms, systematic and cultural coherence, and the rejection of "outsiders." In a highly decentralized organization it will be more difficult

to convert attitudes towards change into action than in a centralized one, as Dewar and Dutton (1986) argue.

In short, it can be concluded that both efficiency and personal rationales limit the number of initiated intracorporate knowledge sharing efforts. While efficiency reasons should be taken for granted, personal considerations underlying the opposition of the knowledge donor and the knowledge recipient should be tackled to increase the quantity determinant and hence the actual total value created by intracorporate knowledge sharing. Founded on the review of the various interest barriers in this section, it may be assumed that the willingness to participate by the donor and recipient in an intracorporate knowledge sharing project is positively associated with the initiation of intracorporate knowledge sharing projects. Thus, with respect to the responsibility of a firm's top management to stimulate intracorporate knowledge sharing, the following proposition was formulated:

Proposition (P2):

The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects.

The management system that stimulates employees' interest to participate in intracorporate knowledge sharing efforts and hence reduces the interest barriers to initiation is called a *Knowledge Sharing Persuasion System*. Based on the scrutiny of the deterrents to interest in this section, the following section enumerates the possible management tools of such a knowledge sharing persuasion system.

4.3.2 Toward a Knowledge Sharing Persuasion System

No knowledge will be shared effectively without the commitment of its donor and its potentially new employer. The disruptive and threatening characteristics of new knowledge mean that pro-sharing managerial attitudes at the front-line level are needed to support knowledge exploitation. As described in the preceding section, both the donor and the recipient can have objective and subjective reasons to oppose to such a process. Apart from the existence of opportunities to share knowledge internally and the availability of facilities to detect them, another prerequisite condition for the initiation of an intracorporate knowledge sharing project is the willingness of the donor and the recipient to participate in the leverage of the intellectual property at stake. The motives of the actors involved represent the main input in the decision-making process regarding intracorporate knowledge sharing and hence should deserve serious attention by corporate management. Consequently, it is posed that the initiation of an intracorporate knowledge sharing effort is more likely to occur when there is

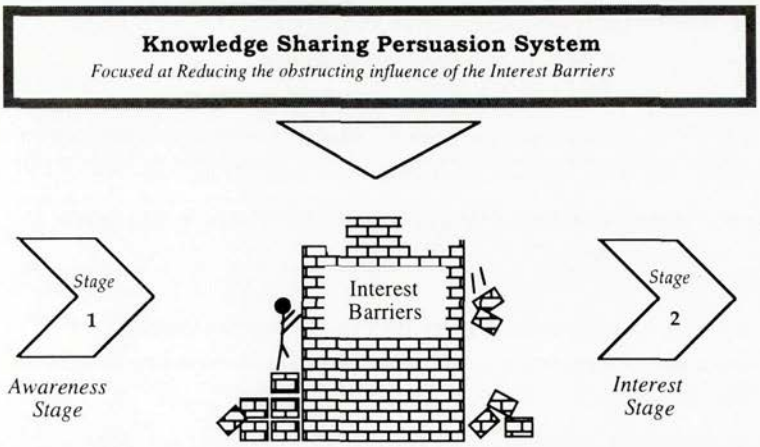


Figure 4.8: The Function of a Knowledge Sharing Persuasion System.

management system, a so-called *Knowledge Sharing Persuasion System*, encouraging employees to reduce their opposition and decide to participate in the exploitation of existing intracorporate knowledge sharing prospects.

A knowledge sharing persuasion system focuses on the reduction and elimination of the obstructing influence of the interest barriers (see Figure 4.8). As a conceptual construct, however, a knowledge sharing persuasion system is not directly observable in practical settings and hence has to be defined on the basis of observable management tools (see Exhibit 4.2). Five management tools described and discussed in the remainder of this section are the most representative spurs presented in the literature with regard to the willingness of the knowledge donor and recipient[4]. Linking these management tools of a knowledge sharing persuasion system and the factors underlying the interest barriers (see Table 4.3), we learn that the interest barriers can be managed appropriately by the set of management tools. Particularly the personal considerations are affected by the management tools, meaning that by implementing one or a combination of the proposed tools of a knowledge sharing persuasion system, the willingness of the donor and recipient to share knowledge and hence the number of initiated intracorporate knowledge sharing efforts are increased.

The knowledge sharing persuasion system has to convince the donor and the recipient that it is worthwhile to deliver, receive, and apply existing knowledge in the corporation. Such a persuasion system must lower or take away the interest barriers which obstruct the initiation of an intracorporate knowledge sharing project and hence lead to an agreement on objectives and desired outcomes. Top management can give content and form to a knowledge sharing

---

[4] Although the extent to which a management tool is representative remains somewhat subjective, its representative nature has been verified by logical reasoning based on the factors underlying the interest barriers and early checks and pilot studies in practical settings.

THE KNOWLEDGE SHARING PERSUASION SYSTEM

A Set of Management Tools

A Knowledge Sharing Persuasion System can be given form and content by using one or more of the following management tools. The most suitable set of management tools for a particular firm and the best way of implementing them are supposed to be situation-specific.

(1) FINANCIAL MEASURES AND REWARDS FOR KNOWLEDGE SHARING

Putting an incentive on participation by providing the donor and/or recipient with an objective or subjective reward

(2) COMMITMENT AND FORMAL STATEMENTS BY TOP MANAGEMENT

Corporate management is a potent force in the organization which can increase the willingness to share knowledge throughout the organization by stressing its importance

(3) ORGANIZING FOR KNOWLEDGE INTERDEPENDENCIES

By concentrating knowledge exploration responsibilities, interdependencies are created by persuading subsidiaries to distract those knowledge items for which they have no development authorization

(4) INSTITUTIONALIZING KNOWLEDGE CHAMPIONS

Knowledge champions can be institutionalized with the assignment to enforce front-line managers throughout the firm to share and adopt existing knowledge and to overcome resistance

(5) CORPORATE CULTURE ACTIVATING A SOCIAL PRESSURE TO SHARE

By creating a corporate culture that "communicates" the shared responsibility for corporate welfare, front-line managers are stimulated to participate in knowledge sharing projects

Exhibit 4.2: Management Tools of a Knowledge Sharing Persuasion System.

persuasion system by using one or more of the following means (see Exhibit 4.2): first, financial measures and rewards can be created to perceive the real benefits of knowledge sharing; second, formal statements from top management and its full commitment can stimulate the intracorporate knowledge sharing process; third, subsidiaries can be enforced to share knowledge if corporate management shapes and facilitates the development of an interdependent network of prerequisite expertise and competences; fourth, champions can be institutionalized for particular knowledge items or categories to sponsor their exploitation; and fifth, corporate management can stimulate the development of a corporate culture activating a social pressure to participate in the exploitation of the firm's intellectual property. Each of these management tools will be elaborated in greater detail below.

TOOL #1: FINANCIAL MEASURES AND REWARDS FOR KNOWLEDGE SHARING

Corporations need new measures to perceive and calculate the true benefits and costs of intracorporate knowledge sharing (Beatty and Gordon, 1988). In all cases, for the transfer to take place, the benefits must be higher than the transfer costs for the firm at large. Still too often, however, front-line managers are stuck with traditional measures that are often unable to

Factor underlying Interest Barriers Tools of KS Persuasion System	Efficiency Rationales	Opposition by Knowledge Donor	Opposition by Knowledge Recipient
Financial Measures and Rewards for Knowledge Sharing	X	X	X
Commitment and Formal Statements by Top Management		X	X
Organizing for Knowledge Interdependencies		X	X
Institutionalizing Knowledge Champions		X	X
Corporate Culture Activating a Social Pressure to Share		X	X

Table 4.3: Matching Tools and Factors underlying Interest Barriers.

track the benefits related to the adoption of new knowledge. Many benefits like improved customer service and increased organizational flexibility are intangible and hence are usually not integrated in the knowledge cost/benefit analysis. Moreover, front-line managers often ignore the benefits for the corporation as a whole with respect to activities that create corporate value through the leverage of internal resources and improved operational integration due to harmonization of the systems and data schemes. New measures that recognize these intangible and indirect advantages increase the attractiveness of intracorporate knowledge sharing projects; more advanced and objective measures take away the agitation between the knowledge supplier and recipient if they have different estimates of the value of the knowledge transferred.

Apart from using new measures to trade off the true benefits and costs, the interest barriers can be reduced by the development of an incentive system (Peters, 1994). In trying to direct employees, a system of sound performance measures is one of the most powerful tools corporate management can use. Performance measures monitor the company's progress, tell employees what really matters, and underpin a realistic reward structure. Performance measures affect business performance by shaping a company's goals and by influencing the actions people take to achieve those goals. Considering the significance of intracorporate knowledge sharing, performance measures are essential in steering the behavior of the corporation's employees accordingly. Why would a knowledge donor invest scarce management resources in the transfer of its own knowledge to other companies if he is not compensated for it? Why would a knowledge recipient be more eager to adopt business solutions from inside the corporation than from less-threatening outside parties if he has to pay the same (internal transfer) price and if he is not rewarded for the corporate value generated by exploiting internally available business solutions? Performance measures can strongly help to persuade employees to recognize the importance to initiate intracorporate knowledge sharing projects. Management information systems must address imperatives relevant to knowledge sharing if the corporation's front-line managers are to perform in line with the corporate aim of increasing the level of knowledge exploitation.

A brief look at the past puts contemporary management accounting practices in perspective. Perhaps more than anything else, the M-form has legitimated the use of accounting information - especially the use of Return-on-Investments (ROI) ratios - to control operating

units. The performance of Western companies, however, has suffered from the stronghold of this philosophy due to the inability to give attention to the "quality" of the short term measures (Johnson and Kaplan, 1987; Johnson, 1992). Attempts to match revenues with costs during arbitrarily short periods cause current period costs to include large allocations of expenditures made in prior periods as well as expenditures made in the current period, but whose benefits will be realized mainly in future periods. Consequently, for the management accounting information system to effectively fulfil its potential contributions to management control, it is necessary that complete, accurate, and neutral accounting performance measures are developed and implemented which are linked to the critical business processes in the corporation. A major limitation of objective formulas, however, as stressed by Gupta and Govindarajan (1986: 699), is that they are likely to induce managers to pay less attention to the performance along dimensions that are difficult to quantify, yet important.

Intangible assets are very difficult to quantify. Methods to objectively value a company's intangible assets are still rare. Consequently, determining bonus awards regarding one's knowledge sharing activities on the basis of a strict formula will remain difficult (Pavitt, 1985; Reddy and Zao, 1990). Still, top management can try to install rewards and incentives related to intracorporate knowledge sharing through a subjective assessment of a front-line manager's activities in this respect. For example, enlisting the number of intracorporate knowledge sharing projects in which a person was involved - guided by an approximation of the effectiveness of the respective knowledge transfer efforts - can constitute an important measure used in business managers' annual appraisal meetings.

TOOL #2: COMMITMENT AND FORMAL STATEMENTS BY TOP MANAGEMENT

With respect to managing intracorporate knowledge sharing, it is important that there exists a well-thought knowledge sharing policy and that this policy is backed by the corporation's business leaders (Granstrand and Sjölander, 1990; Ameden, 1996). The operationalization of best-practice exchange has to be actively supported by senior management. Its commitment and statements in public will communicate its objectives and perspectives on past achievements. Upper management is a potent force in the organization, especially if decision-making power is concentrated in its hands (Dewar and Dutton, 1986). Communication fosters motivation by clarifying to employees what has to be done, how well they are doing, and what can be done to improve performance of it's subpart. Intentions to work towards a goal are a major source of work motivation for front-line managers. That is, goals tell an employee what needs to be done and how much effort will need to be expended (Early, Wojnaroski, and Prest, 1987).

The publicly known commitment of a firm's top management to intracorporate knowledge sharing and its confirmation through statements and behavior can significantly stimulate the initiation of intracorporate knowledge sharing efforts. As Pucik (1991) argues, many Japanese firms have developed a systematic approach to organizational learning that involves more than

just an explicit rejection of the parochial "not-invented-here" syndrome. "A strategic planning process centered on the value of invisible assets, together with corresponding control systems and policies guiding the management of human resources at all levels and functions, constituted a vital part of such a learning infrastructure," Pucik (1991: 127) states. The clarity surrounding the vital importance of knowledge exploitation establishes effective knowledge-sharing communities in many Japanese firms, certainly with respect to tacit knowledge (Hedlund and Nonaka, 1993). An observation which is investigated further during the empirical research (e.g., Canon case).

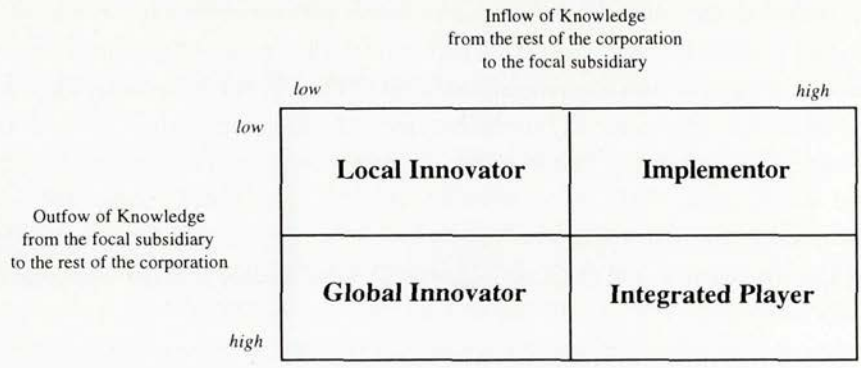
Corporate management can boost the actual total value created through intracorporate knowledge sharing by consistently emphasizing the importance of leveraging internal knowledge resources residing widely throughout their firm. By communicating the necessity of leveraging internally available knowledge and giving feedback on current performance, top management informs employees on what is expected from them which leads to an increase in motivation to effectuate the transfer of knowledge successfully. A suitable means to communicate the importance of intracorporate knowledge sharing is represented by statements of top management during seminars, workshops, and other kinds of formal meetings. A written proclamation often has less impact, but has the potential to reach a broader audience.

TOOL #3: ORGANIZING FOR KNOWLEDGE INTERDEPENDENCIES

There is a clear trend within multinational enterprises toward greater differentiation of strategic roles assigned to various subsidiaries (Hedlund, 1986; Bartlett and Ghoshal, 1989). As outlined in the previous section, multinational enterprises have to be seen not any longer as exploiters of home country knowledge but as vast networks which access technology from various locations and share it with other parts of the organization (Almeida, 1996: 156). More transparency is created with respect to the locus of existing knowledge by exclusively assigning knowledge development responsibilities over the corporation's network of subsidiaries (i.e., reduction of awareness barriers). Moreover, by selectively allocating research and development budgets one reduced the capacity of the remaining affiliates to resist knowledge adoption. Thus, by delegating the authority for particular knowledge exploration activities to, so called, expertise centers, also known as Centers of Competence, Innovation Centers, and Lead Companies, top management eliminates or strongly reduces the interest barriers to intracorporate knowledge sharing. By concentrating or spreading knowledge exploration responsibilities, knowledge interdependencies are created which persuade subsidiaries to obtain those knowledge items which they do not possess and are not authorized to develop[5].

---

[5] In this respect it needs to be stressed that the organization for knowledge interdependencies as a management tool of a knowledge sharing persuasion system also contributes to the development of a knowledge sharing awareness system. As argued in paragraph 4.2, more transparency with respect to the locus of existing



Adapted from Gupta and Govindarajan (1991).

Figure 4.9: Variations in Subsidiary Strategic Contexts.

Gupta and Govindarajan (1991) introduce a knowledge flows-based framework to categorize the variations in subsidiary strategic contexts. Differences in knowledge flow patterns across subsidiaries, they argue, can be captured by focusing on the magnitude of knowledge flows in which a subsidiary engages as well as the directionality of these flows. If these two factors are combined, then all of the multinational enterprise's subsidiaries can be arrayed along a two-dimensional space comprising (a) the extent to which the subsidiary engages in knowledge inflows from the rest of the corporation and (b) the extent to which the subsidiary engages in knowledge outflows to the rest of the corporation. Thus along these two dimensions, as depicted in Figure 4.9, four generic subsidiary roles can be defined: Local Innovator, Global Innovator, Integrated Player, and Implementor.

The Local Innovator role implies that the subsidiary has almost complete local responsibility for the creation of relevant know-how in all key functional areas; however, this knowledge is seen as too idiosyncratic to be of much competitive use outside the country in which the Local Innovator is located. In the Global Innovator role, instead, the subsidiary serves as the fountainhead of knowledge for other units, a role which is historically, especially in the case of U.S. and Japanese corporations, played only by the domestic units. However, as Bartlett and Ghoshal (1989), Harrigan (1984), and Ronstadt and Kramer (1982) document, this is changing and more and more Global Innovator roles are located throughout the world. The Integrated Player role is similar to the Global Innovator role because it also implies a responsibility for creating knowledge that can be utilized by other subsidiaries. However, unlike the Global Innovator, an Integrated Player subsidiary is not self-sufficient in the fulfilment of its own knowledge needs. Finally, in the Implementor role, the subsidiary

knowledge items could be created - and hence the awareness barriers reduced - by allocating knowledge development responsibilities. In creating management systems stimulating and facilitating the intracorporate knowledge sharing process companies should try to exploit these overlapping properties of the attributes.

engages in little knowledge creation of its own and relies heavily on knowledge inflows from either the parent or peer subsidiaries.

In terms of the task demands imposed by different strategic roles, Gupta and Govindarajan (1991: 775) state that "it is obvious that the degree of lateral interdependence will vary across roles." The extent of lateral interdependence with peer subsidiaries, they state, will be highest for Integrated Players, intermediate for Global Innovators and Implementors, and lowest for Local Innovators. In general, however, the creation of an interdependent network of "Innovation Centers" and "Adoption Units" is a very difficult managerial task and hence requires a lot of management attention. On the one hand, Global Innovators must be stimulated to operate as close as possible in line with the needs of their "customers" and the trends in the business environment. Von Hippel (1976) emphasizes the importance of market orientation in innovation, and especially in those situations where the forces for differentiation are large, obtaining the appropriate market orientation and hence consensus on the appropriate directions of the knowledge exploration activities can be very difficult. On the other hand, in enabling the expertise centers to balance technical expertise with user needs, one has to ensure that absorbing companies communicate their ideas and findings and give effective feedback on the developed knowledge items.

Clear procedures and well-defined decision authorities can often be very helpful in trying to achieve fast and effective decision-making on future plans. Keeping the absorbing companies actively involved in recent developments, showing them evidence of progress (e.g., through presentations, newsletters, workshops), facilitating the triability of an innovation, and ensuring a smooth dissemination of outputs will stimulate the creation of an open communication culture and will speed up the recipients' adoption process. An alternative for the structural solution to create interdependencies is to use a more temporary organizational form like a taskforce or a project team. Such workgroups are much more flexible and tend to be strongly integrated in the organization because of their temporary nature.

TOOL #4: APPOINT KNOWLEDGE CHAMPIONS

Interest barriers can also be contested by a firm's top management by appointing, what are called, knowledge champions for several knowledge areas (Van den Bosch, 1996). Knowledge champions, also known as Process or Product Leaders within many organizations, are persons who fight and speak in support of a specified knowledge area and who try to reduce and overcome the inevitable forces of resistance[6]. They have to understand the factors underlying interest barriers and must know when and how to put pressure on donors and recipients of particular knowledge items to increase the likelihood of knowledge transfer and adoption. The knowledge champion is responsible for evaluating the "state of the art" within his or her knowledge domain and deliberately triggers discussions among the owners and acceptors of

---

6 The role of a knowledge champion could be easily combined with the tasks of a knowledge intermediary as described in the previous section.

best practices in trying to convince them of the actual value to be generated by effectuating the transfer of a particular knowledge item.

Champions without hierarchical power will have a difficult task, but many options exist to give meaning to their responsibility. They can finance and facilitate pilot projects to reduce the ambiguity surrounding certain inventions. They can also warn knowledge donors and potential recipients for the threat of being socially excluded. Furthermore, they can put pressure on the actors involved and give concrete material for discussion by effectuating benchmarks of the firm's affiliates. As was argued in the preceding section, a benchmark is a device to identify best practice levels throughout the firm which provides hard data on improvement opportunities to show front-line managers, often in numerical terms, the value of a particular knowledge item. Benchmarking can be a powerful method in persuading recipients to adopt particular knowledge items from their colleagues by putting a concrete value on its potential benefits (Camp, 1989; Bogan and English, 1994).

TOOL #5: CORPORATE CULTURE ACTIVATING A SOCIAL PRESSURE TO SHARE

Finally, the development of a knowledge sharing persuasion system can profit from a strong corporate culture stressing a social need to share knowledge. Many attempts to explain the sustained superior performance of firms, as Barney (1986: 656) argues, "have focused on the managerial values and beliefs embodied in these firms' organizational cultures." A strong set of core managerial values increases the behavioral consistency by conveying to employees what kind of behavior they should engage in (Weick, 1987). A dominant corporate culture is attractive because it overcomes the problems of centralization and formalization in terms of headquarters overload and inflexibility, and hence facilitates the decentralization of knowledge-sharing responsibilities. Moreover, as Bartlett and Ghoshal (1989: 163) argue, "Decisions reached by negotiations between knowledgeable groups with common objectives should be much better than those made by superior authority or by standard policy". "Elements of culture," as Whipp, Rosenfeld and Pettigrew (1989: 582) state, "may supply vital links between the rational aspects of policy and the subjective, less tangible features of employees' behaviour exactly because of the way values pervade an enterprise."

A strong culture increases behavioral consistency and, in this way, can be a powerful means to communicate the acceptability to resist participation in intracorporate knowledge sharing projects[7]. The pattern of beliefs, symbols, rituals, myths, and practices that have evolved over time create a common understanding among members as to what the organization is and how its members should behave (Schein, 1985). This common understanding combined with the threat to become socially excluded enforces participants to operate in line with the

---

7 A strong corporate culture can both act as a spur and as an obstacle to the initiation of intracorporate knowledge sharing efforts. In both cases, however, the corporate culture creates a kind of consistent behavior which is hard to change.

expectations. If a shared feeling of corporate ownership and interdependence has embedded an urge to exploit corporate resources effectively and efficiency, falling short of these expectations will harm one's position in the organization. A strong corporate culture motivates knowledge donors to transfer their redeployable and valuable knowledge items by making them perceive of intracorporate knowledge sharing as a long term investment in one's intraorganizational network.

Although a corporate culture is generally typified as a very rigid and difficult to change characteristic of an organization (Whipp, Rosenfeld and Pettigrew, 1989) and often conceptualized as emerging out of the naturally occurring interactions of people (Barney, 1986), Wiener (1988) discusses three forces that play the most important part in sustaining and gradually adjusting a corporate culture, being the organization's selection practices, the actions of top management, and the organization's socialization methods. The major disadvantage of maintaining a dominant culture is its costs (Bartlett and Ghoshal, 1989). Intensive training, indoctrination, and socialization require substantial investments, certainly in large multinational enterprises. Furthermore, decision-making in firms with dominant cultures is usually a slower, more ambiguous, and more complex management process than it is with either the centralized or formalized approach.

4.4 SUMMARY AND CONCLUSIONS

In managing the intracorporate knowledge sharing process, a firm's top management is strongly limited in its capacity to initiate and effectuate knowledge transfer efforts throughout the organization. Knowledge resides at the front-line level where it has to be defined, integrated, and exploited. Corporate management can only play an indirect part and, in doing so, has to create a corporate context which stimulates and facilitates the intracorporate knowledge sharing process. With respect to the decision phase of this process, we assume that the initiation of an intracorporate knowledge sharing project depends on whether the existence of relevant knowledge is known or could be known throughout the organization, depending on the height of the Awareness Barriers. Furthermore, such initiation depends upon the degree of interest of the knowledge donor and potential recipient to participate in an intracorporate knowledge sharing project, depending on objective and subjective rationales that underlie the Interest Barriers.

Based on the assumption that various awareness barriers obstruct the leverage of internally available knowledge, it was posed that the initiation of an intracorporate knowledge sharing project is more likely to occur when there is a *Knowledge Sharing Awareness System*, which supports employees in tracing intracorporate knowledge sharing prospects. Five management tools incorporated in the Knowledge Sharing Awareness System have been presented: knowledge codification and registration, a network linking the knowledge sources and adopters, distribution of knowledge development responsibilities, institutionalization of

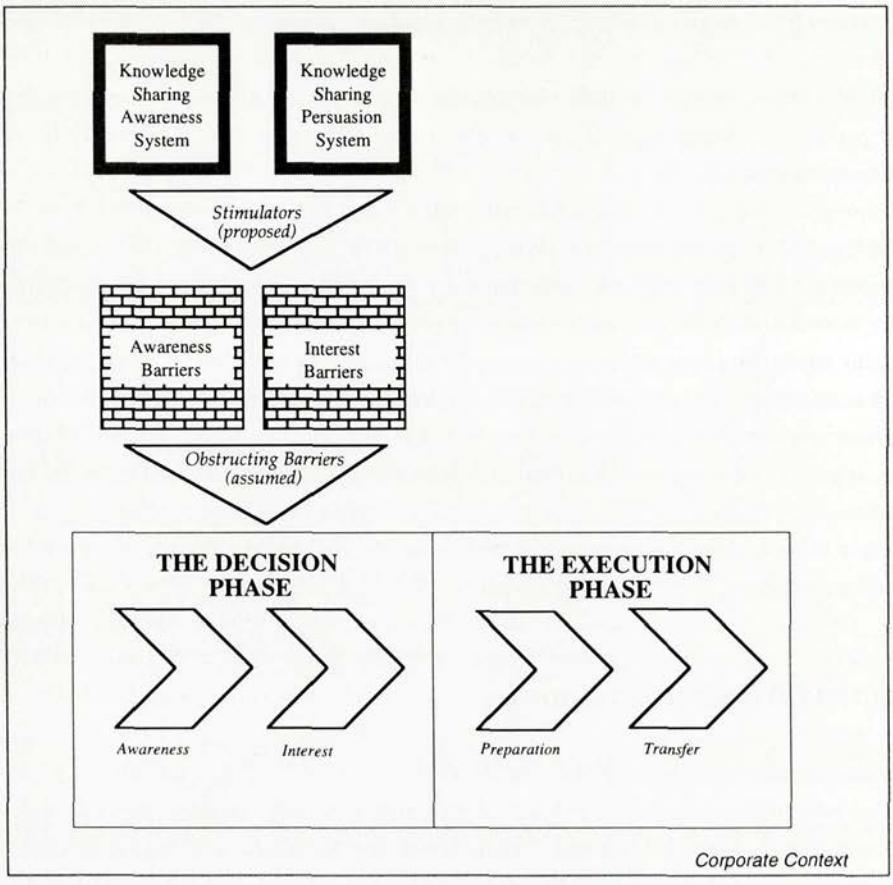


Figure 4.10: Managing the Decision Phase.

knowledge intermediaries, and benchmark tools. These five management tools are the most representative spurs presented in the literature with regard to awareness.

After the existence and locus of a knowledge sharing opportunity has been detected, both actors will determine their willingness to participate in the knowledge transfer project based on efficiency and personal rationales. It was posed that the initiation of an intracorporate knowledge sharing project is more likely to occur when there is a *Knowledge Sharing Persuasion System*, which motivates employees to participate in knowledge sharing with colleagues. Again, five tools form the basis of the Knowledge Sharing Persuasion System: financial measures and rewards with respect to knowledge sharing, commitment and stimulating statements by top management, creating knowledge interdependencies between the subsidiaries, institutionalizing knowledge champions, and creating a corporate culture which activates a social pressure to transfer and adopt existing expertise and skills within the firm. These five management tools are the most representative spurs presented in the literature with regard to the interest of the actors involved.

No conclusions have been drawn up regarding the most suitable combination of management tools and the best way of implementing them. Although the empirical research will present some illustrations, the prevailing contingencies in this respect require further study. Interesting to note, however, is the overlap which exists between the management tools underlying both management systems. For example, the role of a knowledge intermediary as a management tool to give form and content to a Knowledge Sharing Awareness System could easily be combined with the tasks of a knowledge champion as part of a Knowledge Sharing Persuasion System. Moreover, the establishment of knowledge interdependencies contributes to the development of both a Knowledge Sharing Awareness System and a Knowledge Sharing Persuasion System in that it creates more transparency with respect to the locus of existing knowledge items and puts a pressure on the recipient to adopt internally available knowledge items. So, by using some distinct management tools, both management systems can be activated at the same time. This not only shows that the two management systems are highly interrelated, but also points to the benefits of these tools in terms of "synergies" to be gained.

In conclusion, in managing the decision phase corporate management has to remove and reduce the barriers to initiation by adopting two prerequisite "stimulators", being a Knowledge Sharing Awareness System and a Knowledge Sharing Persuasion System. Through successful implementation of these management systems, corporate management establishes a corporate context stimulating the number of initiated intracorporate knowledge sharing efforts throughout the organization.

5

Management Systems that Remove and Reduce the Barriers to Effectuation

The Execution Phase

"The effective commercialization of new technology is considered less a relay race where players hand off a baton to the next player than it is a contact sport like football where the person carrying the ball (the technology champion) is met with active resistance (transfer barriers) by some players while trying to score a touchdown (introduce the technology into the marketplace in a timely fashion)."

- Gibson and Smilor (1991: 292).

5.1 INTRODUCTION

The execution phase, following the adoption decision at the end of the decision phase, takes care of the actual effectuation of the knowledge transfer. Taking the decision to participate in the transfer of knowledge is not only the prerequisite starting point but also the beginning of a second phase leading to the knowledge item's actual transfer, application and integration into the recipient's knowledge base. The execution phase of the intracorporate knowledge sharing process concerns those activities aimed at putting the knowledge item into use and, as the conceptualization of the intracorporate knowledge sharing process in chapter 3 delineates, consists of two stages, namely a preparation and a transfer stage. Instead of the strictly mental exercise of the decision phase, the execution phase, as stated by Rogers (1995), involves overt change in behavior as the knowledge item is actually put into practice in the organization and operations of the recipient.

The execution phase affects the actual total value created by intracorporate knowledge sharing which is, as mentioned in the third chapter, the summation of the merit of all the individual knowledge sharing initiatives. While the management of the decision phase determines the number of initiated intracorporate knowledge sharing projects (*the Quantity*

Determinant), managing the execution phase influences the quality of each project and hence its particular merit (*the Value Determinant*). The merit of each individual intracorporate knowledge sharing project can be calculated or estimated by subtracting the transfer costs from the advantage the new knowledge has over the knowledge it supersedes. The costs related to the transfer of knowledge, as stated in the previous chapter, can be considerable (Contractor, 1980; Pavitt, 1987) and comprise pre-transfer (planning, engineering, documentation), transfer, and post-transfer costs (management time, adaptation). The advantage of intracorporate knowledge sharing project could be related to benefits for the acceptor such as achieved cost reductions (process redesigns, automation), improved customer value (product innovations, service improvement), or upgraded competitive position (increased flexibility). Managing the execution phase of an intracorporate knowledge transfer project needs to be aimed at exploiting the latent merit of each project by mimimizing the knowledge transfer costs and maximizing the utilization of the potential advantages.

A brief study of the execution phase of the intracorporate knowledge sharing process in the third chapter of this study made us conclude that the role of a firm's top management in this phase is limited to the task to facilitate; in other words, influencing the successfulness of the intracorporate knowledge sharing projects between managers throughout the hierarchy by creating the appropriate conditions for effectuating the transfer and deployment of knowledge in a productive way. Once again the role of corporate management is primarily indirect and limited to the elimination and reduction of barriers to the effective and efficient transfer of knowledge items. It has been argued that the task to facilitate could be fulfilled in two ways. On the one hand, corporate management can take action to reduce, on average, the complexity to share knowledge. On the other hand, corporate management can invest in the firm's transfer

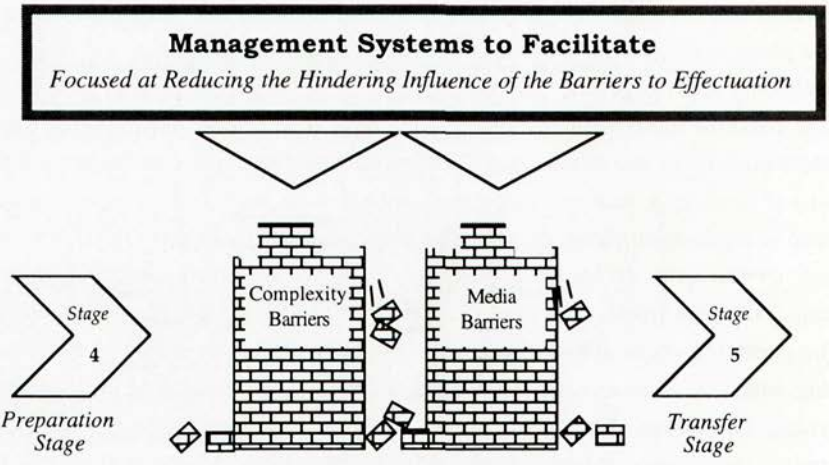


Figure 5.1: Factors Influencing the Effectuation of Knowledge Sharing Efforts.

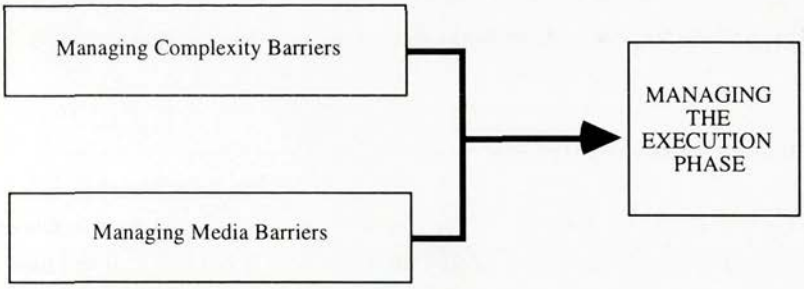


Figure 5.2: Managing the Execution Phase

media to enable the front-line managers to cope with the particular complexity of their intracorporate knowledge sharing projects.

In line with the structure of the former chapter, this fifth chapter makes a distinction between two sets of barriers, namely *Complexity Barriers* and *Media Barriers*. An enumeration, classification, and description of these barriers will be used as the foundation for deductive reasoning towards two propositions with respect to the management systems facilitating the intracorporate knowledge sharing process in its execution phase. It will be posed that without the appropriate attention for and investments in managing complexity and media barriers, successful intracorporate knowledge transfer is less likely to occur.

5.2 MANAGING COMPLEXITY BARRIERS

Effectuating the successful transfer and deployment of a knowledge item from the knowledge donor to a knowledge acceptor is complicated by many situation-specific characteristics of the particular knowledge sharing effort. Although the medium richness could be tuned to the prevalent knowledge sharing complexity, as will be discussed in the next section, facilitating the execution of knowledge sharing by reducing the complicating influence of the existing deterrents, at average, can strongly contribute to the eventual application and integration of the knowledge item in the recipient's organization. A knowledge transfer that is properly facilitated in this fashion has a better chance to succeed with a smaller medium investment. Unfacilitated knowledge transfer projects simply bound off the barriers to become a transfer failure or require a considerable investment in terms of pre-transfer, transfer, and post-transfer costs.

In their task to facilitate, a firm's top management should reduce the hindering influence of the complexity barriers. This section deals with how corporate management can cope with these complexity barriers and proposes to implement a *Knowledge Sharing Complexity Reduction System* as a facilitator to effectuation. Based on an overview and classification of

the barriers complicating the successful transfer, application, and integration of knowledge items in the first section, section 5.2.2 presents a number of corporate management tools that embody the Knowledge Sharing Complexity Reduction System in its organization.

5.2.1 Origins of Complexity Barriers

An examination of the literature reveals a number of factors complicate the effectuation of an intracorporate knowledge sharing effort after the knowledge donor and recipient have agreed upon its initiation. A wide range of complexity barriers with a negative impact upon the ease of transferring internally available knowledge items have been observed, studied, and described before (e.g., Keller and Chinta, 1990; Gibson and Smilor, 1991). As depicted in Figure 5.3, the attributes of complexity barriers are classified into four distinct categories: nature of knowledge, heterogeneity of prior knowledge, personal motivation, and the level of trust between the actors involved. This section elaborates upon these categories underlying complexity barriers. Each category with its particular relation to the complexity of the knowledge sharing situation is briefly reviewed.

The first - and according to many authors the main element for indicating and describing the particular complexity of a knowledge transfer or diffusion situation - is the transfer item itself (e.g., Frame, 1983; Aharoni, 1991). In contrast with the view of Downs and Mohr (1976) who emphasize the subjective factor of innovation attributes, the heterogeneous *nature of knowledge* is often assumed to affect the complexities involved in intracorporate knowledge sharing. Both the knowledge item's form (e.g., capital embodied, human embodied, disembodied) and content (e.g., complex, simple) varies across knowledge sharing efforts. In this respect Boisot (1983) posed a relationship, based on the work of Polanyi (1958,1966) and in line with many subsequent authors (e.g., Winter, 1987; Fleck, 1996), between codification and diffusion of knowledge. The more a knowledge item has been codified and made explicit, the more easily, speedily, and economically it can be diffused.

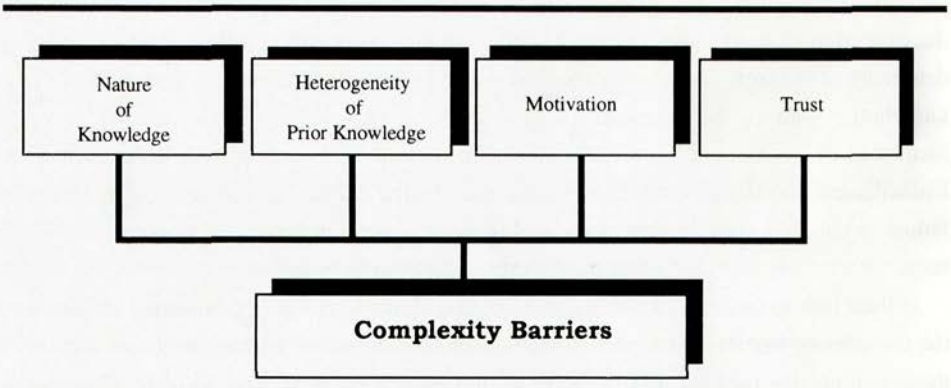


Figure 5.3: Factors underlying Complexity Barriers.

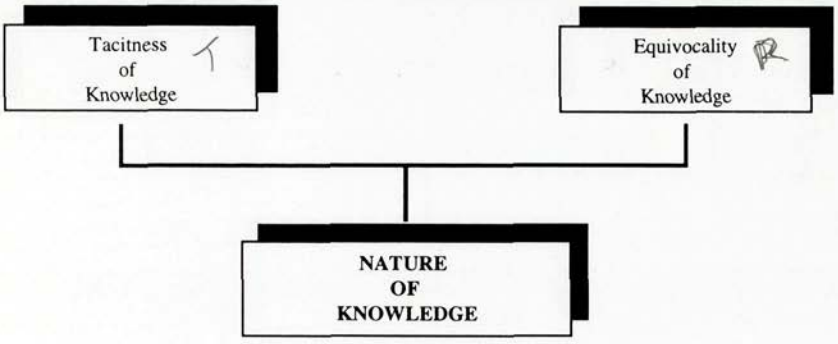
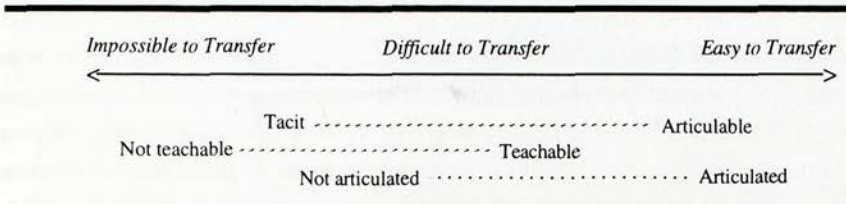


Figure 5.4: The Elements of the Nature of Knowledge.

Tacit knowledge, as defined in the previous chapter, constitutes the experience of educated, skilled workers which steers the process or act of thinking but which is not easily visible and expressible. Tacit knowledge is highly personal, nonverbalized, hard to formalize systematically, and hence difficult to communicate to others (Hedlund, 1994). For tacit knowledge to be communicated, close human interaction is required and the knowledge item "has to be converted into words or numbers that anyone can understand" (Nonaka, 1995: 9). It is this conversion from tacit to explicit and back again to tacit which is often unachievable. Winter (1987) stresses, however, that a lot of our "tacit knowledge" may be teachable even though it may not be articulable. By placing the not articulated position between the teachable and not teachable position in one of his taxonomic dimensions of knowledge assets (see Figure 5.5), Winter indicates that "the failure to articulate what is articulable may be a more severe handicap for the transfer of knowledge than tacitness itself" (171). Like the example of the ballet dancer in the previous chapter, the swimming instructor teaches his or her pupils the skill of swimming not by an abstract conceptualization of his or her know-how, but by facilitating and directing a series of trial and error performances. The learning process is accelerated by the instructor's advise and critique with respect to the direct experiences of the pupils' bodies and minds.

Apart from the tacitness dimension of knowledge, academics focusing on such issues as technology transfer and innovation characteristics have often stressed the complicating influence of the knowledge item's equivocality and related to this its level of sophistication,



Adapted from Winter (1987).

Figure 5.5: The Tacitness Dimensions of Knowledge Assets.

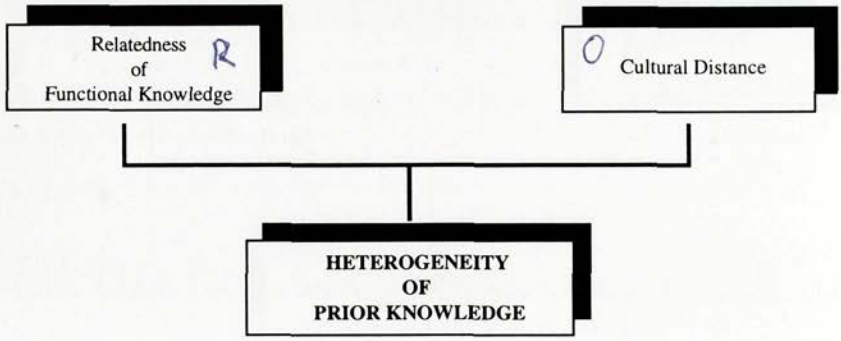


Figure 5.6: The Elements of the Heterogeneity of Prior Knowledge.

complexity, causal ambiguity, triability, and observability (Rogers and Shoemaker, 1971; Smilor and Gibson, 1991). Equivocality refers to the level of complexity and ambiguity of the knowledge item to be transferred (Pinkston, 1989; Weick, 1990). Highly equivocal knowledge is harder to understand, more difficult to demonstrate, and more ambiguous in its potential applications. If the precise reasons for success or failure are known and hence the features of the new context affecting the results of the replication effort controlled, the knowledge transfer effort tends to be easier. Moreover, the complexity of knowledge transfer, application, and integration is strongly reduced the more a user only has to deal with the knowledge item's externals, as in the case of a product or tool-embodied transfer. The less encapsulated the package, the more the user has to understand and master details of what is going on within the knowledge item and the more difficult knowledge transfer becomes (Smilor and Gibson, 1991).

A second factor underlying the complexity barriers in the intracorporate knowledge sharing process is the *heterogeneity* between the actors' prior knowledge (Cohen and Levinthal, 1990; Szulanski, 1995). Special problems in securing the effective transfer of knowledge can be caused by difference between the pairs of individuals in certain attributes such as beliefs, values, education, social status, and the like. As argued by Boisot (1983: 163): "It is the fact that people possess different types of knowledge and experience that creates opportunities for their communication[1]. Yet, paradoxically, such communication as does take place between them can only do so on the basis of similarities in the knowledge and experience they each

[1] In line with Boisot (1983), Mahoney (1995) stresses that heterogeneous mental models can contribute to the achievement of competitive advantage. He argues that by combining heterogeneous resources with heterogeneous mental models "new combinations" can be detected. Instead of affecting the innovativeness of the firm by reducing the complicating influence of this Complexity Barrier, a firm can decide to accept this barrier to intracorporate knowledge sharing and focus on the firm's ability to match the prevailing complexity by reducing the Media Barriers.

possess." "[T]he process of codifying a message for transmission," Boisot (1983: 161) stresses, "involves a loss of information that can only be recovered in situations where a receiver associates the same clusters of meaning with the symbols chosen as does the sender." The heterogeneity of prior knowledge can be split, as depicted by Figure 5.6, in two components, being the relatedness of functional knowledge and the cultural distance between the donor and the recipient.

Functional knowledge comprises expertise and know-how with respect to a particular knowledge problem. Many authors assume that in order to deploy new knowledge in an economic or operational sense, recipients need to cultivate an in-house knowledge base to improve the firm's "absorptive capacity" (e.g., Agmon and Glinow, 1991; Von Hippel, 1994). As stressed by Cohen and Levinthal (1990: 131), "learning is more difficult in novel domains" and hence knowledge sharing between actors specialized in different subject areas could be rather complex, particularly in technical areas. Recipients are normally obliged to devote substantial resources to assimilate, adapt, and improve upon the original knowledge item. Therefore, to the extent that the normal features of knowledge include imperfect understanding, incomplete availability, imperfect ability to imitate, tacitness, and so forth its successful use tends to be dependent upon the recipient's possession over a related knowledge base in functional terms. In that way, Pavitt (1987: 186) points out that "even borrowers of technology must have their own skills, and make their own expenditures on development and production engineering; they can not treat technology developed elsewhere as a free, or even very cheap, good." One should take more into account what organizations appear to be able to do prior to the transfer process and integrate this in one's judgement on the attractiveness and complexity of the knowledge sharing initiative (Cusumano and Elenkov, 1994).

Next to the unrelatedness of functional knowledge, heterogeneity in prior knowledge can also be caused by a cultural distance between the knowledge donor and the recipient. Management is compounded by cultural differences in two dimensions, organizational subculture and national culture (Grandstrand and Sjölander, 1990). If organizations grow, specialized units are created and each unit generates its own idiosyncratic norms, values, time frame, and coding schemes (March and Simon, 1958; Katz and Kahn, 1966; Tushman, 1977). Contrasting languages (Tversky and Kahneman, 1985; Dutton and Jackson, 1987) and coding schemes (Kennedy, 1983; Ireland, Hitt, Bettis and DePorras, 1987; Walker, 1985) will evolve within the same organization because of differences in national environments, historical roots, institutionalization processes (education, legislation), and strategic visions. These inherent cognitive, conceptual, linguistic, and normative differences act as a communication impedance and hence form complicating barriers in the intracorporate knowledge sharing process (Kedia and Bhagat, 1988). As stated by Ferraro (1996: 39): "Effective communication among people from the same culture is often difficult enough. But when attempting to communicate with people who do not speak English and who have different attitudes, ideas, assumptions, perceptions, and ways of doing things, one's chances for miscommunication increase enormously."

The third factor underlying the complexity of the knowledge transfer effort is the personal *motivation* for active participation and support concerning the knowledge transfer (Ounjian and Carne, 1987; Szulanski, 1995). Having showed its significance during the initiation of a project, the actor's level of motivation, ranging from positive to hostile, is also highly relevant for the successful effectuation of the knowledge transfer and its productive integration in the recipient's organization. Without the willingness and motivation of both the transferor and acceptor, knowledge transfer is very difficult. The source may be reluctant to share crucial knowledge for fear of losing ownership, a position of privilege, superiority or simply as a consequence of a lack of proper rewards for sharing hard-won success. The donor may be hostile because the successful transfer of knowledge could jeopardize his knowledge development budgets and his status as innovator.

An organizational context which clearly communicates the group's expectations with respect to intracorporate knowledge sharing influences its members' personal motivation. The direction of the group pressure is shaped by the perceived goals and strategic vision of the corporation and the strive of the corporate whole for survival and competitive success. The strength of group pressure is determined by factors as the identification with the group, uniformity of group opinions, and group cohesiveness (March and Simon, 1958). If the firm's subsidiaries are strongly interdependent, the threat to be socially excluded can be quite severe which will significantly increase their motivation to cooperate. Apart from pressure of group members, as depicted in Figure 5.7 and discussed in the previous chapter, the personal motivation of both donor and recipient is influenced by their question "What's in it for me." Their expectations with respect to their own gains and expected rewards determine their attempt to share knowledge successfully.

Finally, the complexity to effectuate the transfer of knowledge is influenced by the level of *trust* between the donor and recipient (Lasserre, 1982; Fukuyama, 1995). Although research on cooperative behavior and network structures has identified many determinants of productive cooperation, virtually all scholars in these fields of research agreed that one

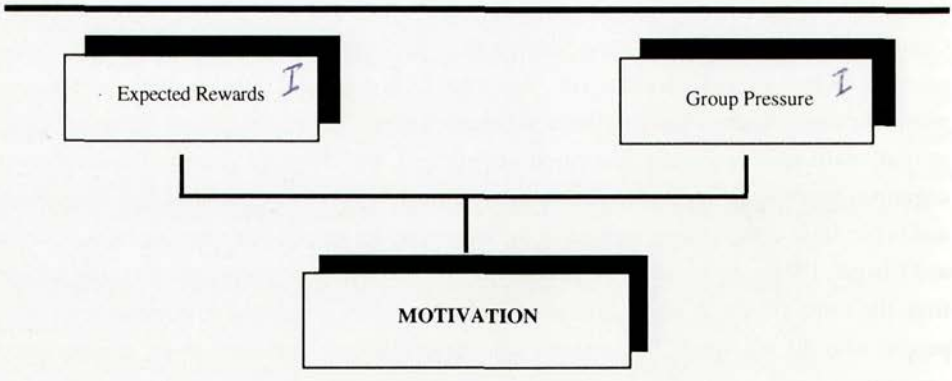


Figure 5.7: The Elements of Personal Motivation.

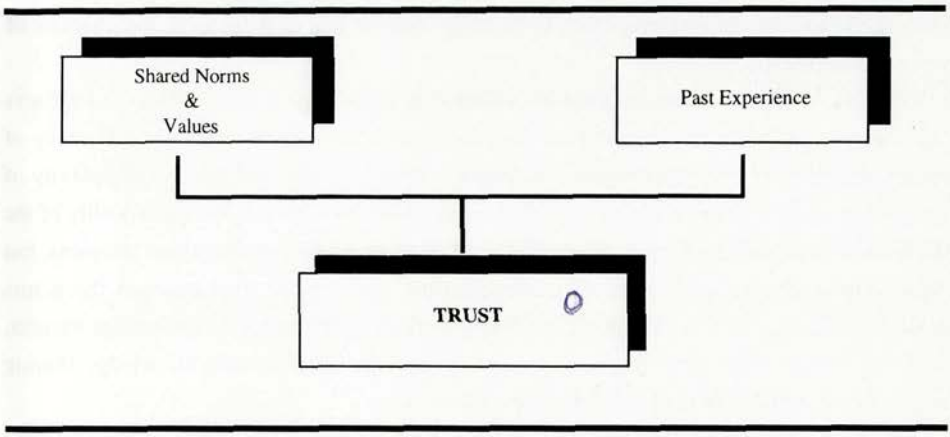


Figure 5.8: The Elements of Trust.

especially immediate antecedent is trust (Casson and Nicholas, 1989; Smith, Carroll, and Ashford, 1995). Trust is an individual's confidence in the good will of the other(s) and belief that the other(s) will make efforts consistent with the mutual goals (Ring and Van der Ven, 1994). As stated by Fukuyama (1995: 26): "Trust is not necessary for cooperation... Groups can be formed at any time based on self-interest... But while contract and self-interest are important sources of association, the most effective organizations are based on communities of shared ethical values. These communities do not require extensive contract and legal regulation of their relations because prior moral consensus gives members of the group a basis for mutual trust." Without trust, successful knowledge transfer becomes increasingly difficult. Consequently, trust constitutes one of main barriers determining the complexity in the execution of intracorporate knowledge sharing. A belief by both the knowledge donor and knowledge recipient that the other will make efforts consistent with mutual goals is critical for their decision to succeed with the transfer and application of knowledge.

The two main factors determining the level of trust between the source and receiver of knowledge, as depicted by Figure 5.8, are the availability of shared norms and values (Fukuyama, 1995) and past experiences (Ring and Van der Ven, 1994). Norms and values are culturally determined and hence differ across both organizational and national boundaries. The lack of a common point of reference complicates communication and harms the feeling of confidence in the actions of the other. Besides the lack of shared norms and values, the level of trust can be negatively influenced by the existence of a bad record of previous cooperative efforts. Ring and Van der Ven (1994: 96) therefore note that cooperative relationships are '"... socially contrived mechanisms for collective action, which are continually shaped and restructured by actions and symbolic interpretations of the parties involved." Consequently, trust can be conceptualized as a dynamic factor which changes over time and during various cooperative efforts. The level of trust which exists between the donor and the recipient is difficult to influence on the short term. However, if a certain degree of trust exists, it will

smooth the process of intracorporate knowledge sharing and will increase the chances of success dramatically.

Complexity barriers complicate the effectuation of knowledge transfer efforts and a firm's top management can remove or reduce them to increase the effectiveness and efficiency of knowledge transfer efforts throughout the organization. It is assumed that the complexity of knowledge sharing situations is positively correlated with the tacitness and equivocality of the knowledge item and the heterogeneity of prior knowledge between donor and recipient, but negatively correlated with personal motivation and the level of trust between the actors involved. Building on the analysis of complexity barriers complicating the knowledge transfer, the responsibility of a firm's top management to facilitate intracorporate knowledge sharing can be formally stated in the following proposition:

Proposition (P3):

The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing.

The management system that reduces the complicating influence of the complexity barriers and hence reduces the barriers to effectuation is called a *Knowledge Sharing Complexity Reduction System* (see Figure 5.9). Based on the discussion of the complexity barriers in this section, the following section enumerates the possible management tools of such a knowledge sharing complexity reduction system.

5.2.3 Toward a Knowledge Sharing Complexity Reduction System

Confronted with the voluminous set of complexity barriers, many knowledge transfer efforts fail. The difficulties caused by elements as high equivocality of the knowledge item, incompatibility of actors' background, and a history of frustrations built up during previous transfer efforts complicate the task of a firm's front-line managers to transfer, apply, and integrate knowledge items. Top management's task to facilitate intracorporate knowledge sharing by lowering the complicating influences on the execution of a knowledge transfer effort works only indirectly, but this is no reason to dismiss its significance. Although managers on the front lines are the ones who must control, transfer, and integrate knowledge, corporate management can create the appropriate conditions to successfully effectuate the knowledge sharing efforts throughout the firm.

Positive organizational actions must be performed by corporate management to encourage front-line managers to pursue interrelationships and to ease the inherent difficulties in effectuating the knowledge transfer, application, and integration. As a conceptual construct, however, a knowledge sharing complexity reduction system is not directly observable in

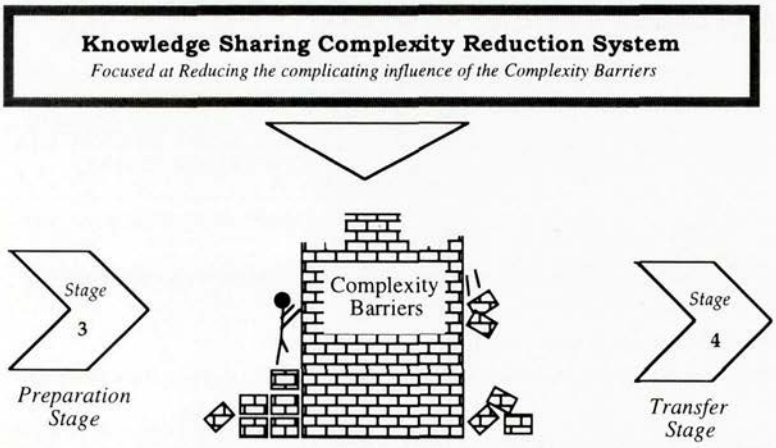


Figure 5.9: The Function of a Knowledge Sharing Complexity Reduction System.

practical settings and hence has to be defined on the basis of observable management tools. The management tools described and discussed in the following of this section (see Exhibit 5.1) are the most representative spurs enlisted in the literature with regard to the complexity of knowledge transfer efforts[2] excluding those management tools related to the personal motivation of the actors involved. Five management tools have been presented in the preceding chapter concerning the reduction and elimination of the obstructing influence of the interest barriers:

(1) Financial Measures and Rewards for Intracorporate Knowledge Sharing;
(2) Commitment and Formal Statements by Top Management;
(3) Organizing for Knowledge Interdependencies;
(4) Institutionalizing Knowledge Champions; and
(5) Corporate Culture Activating a Social Pressure to Share.

These five management tools encourage employees to reduce their opposition and increase their motivation with respect to intracorporate knowledge sharing. As a consequence, we refer back to the section on the Knowledge Sharing Persuasion System in the preceding chapter to circumvent duplication in the underlying text. As stressed before, some management tools can activate more management systems at the same time and this not only shows that the knowledge sharing management systems are highly interrelated, but also points to the benefits of these tools in terms of "synergies" to be gained.

---

2 Although the extent to which a management tool is representative remains somewhat subjective, its representative nature has been verified by logical reasoning based on the factors underlying the awareness barriers and early checks and pilot studies in practical settings.

THE KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM

A Set of Management Tools

A Knowledge Sharing Complexity Reduction System can be given form and content by using one or more of the following management tools. The most suitable set of tools for a particular firm and the best way of implementing them are supposed to be situation-specific.

(1) KNOWLEDGE ABSTRACTION & CODIFICATION

Tacit knowledge items can be converted and abstracted into understandable and codified words and numbers

(2) INCREASING USER INVOLVEMENT & TRIABILITY

Users can be involved early in the knowledge creation process and the triability of the knowledge products can be increased

(3) ESTABLISHING A CORPORATE-WIDE LANGUAGE

A corporate-wide "language" can be established which will contribute to the communication process between donor and recipient by harmonizing definitions and information structures

(4) ARRANGING REGULAR MANAGEMENT MEETINGS

The arrangement of regular international management meetings can create the foundation on which cooperative interrelationship can grow throughout the organization

(5) DOMINANT CORPORATE CULTURE

Corporate management can facilitate the intracorporate knowledge sharing process by establishing a dominant corporate culture in which core values are both intensely held and widely shared

Exhibit 5.1: Management Tools of a Knowledge Sharing Complexity Reduction System.

Apart from the five management tools concerning the personal motivation, top management can give content and form to a Knowledge Sharing Complexity Reduction System by using one or more of the following tools: first, tacit knowledge items can be converted and abstracted into understandable and codified words and numbers; second, users can be involved early in knowledge creation activities and the triability of knowledge items can be increased; third, a corporate-wide "language" contributes to the communication process by harmonizing definitions and information structures; fourth, the arrangement of regular management meetings can create the foundation on which cooperative interrelationships can grow throughout the organization; and fifth, corporate management can facilitate the intracorporate knowledge sharing process by establishing a dominant corporate culture in which some core values are are both intensely held and widely shared.

TOOL #1: KNOWLEDGE ABSTRACTION AND CODIFICATION

Corporate management can reduce the complexity of an intracorporate knowledge sharing effort by taking action with respect to the tacit nature of a significant part of a firm's knowledge base. They can improve the transferability of knowledge items, at average, by putting some pressure on the abstraction and codification of knowledge. Firms still too often

Factor underlying Complexity Barriers / Tools of Complexity Reduction System	Nature of Knowledge	Heterogeneity of Prior Knowledge	Personal Motivation	Level of Trust between the Actors
Knowledge Abstraction & Codification	X			
Increasing User Involvement & Triability	X			X
Establishing a Corporate-Wide Language		X		X
Arranging Regular Management Meetings		X		X
Dominant Corporate Culture		X		X

Table 5.1: Matching Management Tools and Factors underlying Complexity Barriers.

ignore the value of skills, experience, and capabilities residing in their employees, departments, and subsidiaries. In many occasions organizations watch their most knowledgeable employees retire or leave without even being slightly concerned about the knowledge that is lost and not handed over to their successors. A knowledge abstraction and codification policy can unstuck parts of a firm's knowledge reservoir. Knowledge items become better moveable as they are converted in words and numbers that anyone can understand (Hedlund and Nonaka, 1993). By codifying the existing expertise and experience, one significantly increases the ease of transferring knowledge. Consequently, emphasizing the need to document one's critical experience and know-how and facilitating its abstraction and storage significantly improves, if selectively implemented, the exploitability of and control over the firm's knowledge reservoir.

Knowledge abstraction efforts, however, need to be implemented selectively because the major part of the firm's knowledge reservoir remains tacit or, as stated by Levitt (1991: 17), "... [t]he most precious knowledge can neither be taught nor passed on." Expensive management resources should not be spoiled for the codification of uncodifiable knowledge. In many cases, knowledge can only be acquired through direct experience comprising such activities as organizational experiments, organizational self-appraisal, and "on-the-job" learning. Moreover, as concluded in the previous chapter, one has to circumvent too rigid knowledge abstraction strategies because it can significantly harm the corporation's flexibility and various obstacles stand in the way of effective knowledge abstraction (e.g., need for common coding schemes in the interpretation of knowledge). Therefore, in stimulating the abstraction of knowledge, steering a middle course is often most preferable and corporate management must seriously control the activities in this respect. Only simple knowledge items requiring a limited amount of feedback can be considered as suitable candidates for full articulation, meaning that the knowledge item is fully detached from the donor and hence able to flow independent from its source.

TOOL #2: INCREASING USER INVOLVEMENT AND TRIABILITY

Highly equivocal knowledge items are hard to understand, more difficult to demonstrate, and more ambiguous in its potential applications. Although partly intertwined with the tacitness

dimension of the nature of knowledge, the equivocality dimension stresses the need to reduce the fuzziness, uncertainty, and ambiguity surrounding particular knowledge items. Other things being equal, a knowledge item is much easier to transfer if it is easy to comprehend and if its impact on a new context is totally clear for the parties involved in the knowledge transfer effort. Actions of corporate management to lower the equivocality of their knowledge base therefore need to focus on making the knowledge more concrete and understandable, less uncertain regarding its effects on the recipient's operations, and better observable and testable in some practical settings by increasing both the user involvement and the triability (Smilor and Gibson, 1991).

Corporate management can decrease the complicating influence of the equivocality of knowledge by making sure that those being responsible for knowledge development involve the potential adopters early in the knowledge creation process. The complexity of a knowledge transfer efforts can be strongly reduced by stimulating prospective knowledge recipients to clarify expectations and explicate the deployment criteria regarding particular knowledge development activities. Expertise centers or knowledge development project teams should be pushed to establish early linkages and interaction processes with the deployers of the knowledge they try to explore and develop. User involvement early in and during the knowledge development process can increase the understanding of the user and hence decrease the complexity of the knowledge transfer process later on (Ives and Olsen, 1984; Leonard-Barton, 1990; Leonard-Barton and Sinha, 1993).

Another way by which corporate management can decrease the complicating influence of the equivocality of knowledge on the intracorporate knowledge sharing process is by increasing the triability of knowledge items. On-site demonstrations, interactive assessments of a new knowledge item, and the opportunity to try new innovation on a pilot basis can extent the mutual understanding between donor and recipient and hence strongly facilitate the transfer of knowledge. Triability of an innovation, as argued by many authors before (e.g., Bright, 1967; Rogers and Shoemaker, 1971; Glaser, 1973), increases the comprehension by the acceptors and lessens the resistance.

TOOL #3: ESTABLISHING A CORPORATE-WIDE LANGUAGE

Communication and conversation management can strongly contribute to the effectuation of an intracorporate knowledge sharing effort. The proximity between a firm's employees can be decreased if corporate management manages the creation of coherence in the definition of the data-elements and information structures throughout the organization. Notwithstanding the variety in national languages, companies communicate internally through their own phrases and concepts inherited from their past (Von Krogh and Roos, 1995). Assuming no central control, each and every organizational unit tends to develop and define its own internal language and coding schemes resulting in severe communication problems on an inter-unit basis. Employees constantly create new language and new meaning ensuing that concepts and

phrases from one company are, in principle, not translatable into the culture of another organization (Von Krogh & Roos, 1996). If not managed carefully, each and every subsidiary in a corporate whole develops and institutionalizes its own "language" obstructing and complicating conversations on a cross-affiliate basis.

As a consequence, corporate management should acknowledge these language differences and take action with respect the development, institutionalization, and control of a corporate-wide internal language facilitating the communication and knowledge transfer between front-line managers throughout the organization. The more time and resources spent by corporate management on developing and giving meaning to concepts and phrases, the "richer" the corporate context is for sharing internally available knowledge. A well managed corporate language could smooth the effectuation of knowledge transfer efforts by taking away major difficulties to share knowledge due to the prevailing differences in mother tongue, concepts, phrases, process definitions, and data structures and hence facilitate the exploitation of a firm's valuable but scattered knowledge resources.

TOOL #4: ARRANGING REGULAR MANAGEMENT MEETINGS

Corporate management can take actions to reduce the heterogeneity internally by expanding the number and quality of people interacting. Intensifying and improving contacts between a firm's employees can increase mutual understanding in terms of values, attitudes, and ways of doing things. Formally, one could organize and facilitate management meetings for reasons such as the review of current trends, past achievements, and future plans, the deliberation on particular issues or assignments, and management training and development. Besides progress on these formal aims, however, these encounters can decrease the "personal distance" both in functional and cultural terms and these indirect effects are in many cases at least as valuable as the direct ones. By being educated or by deliberating on certain topics, perspectives and jargon on the issue are made clear, brought together, and in some situations synthesized. Moreover, by participating in this kind of meetings employees learn their (foreign) peers, become aware of cultural differences, and develop a capability to deal with them.

An other feature of regular management meetings is that it can increase the level of trust between the firm's employees. Accepting cooperation as a dynamic process where participants constantly evaluate their own involvement in cooperative projects (Ring and Van der Ven, 1994), regularly arranged (international) management meetings cannot only reduce the heterogeneity between firm's employees but also stimulate a growth of the level of trust. Regular management meetings can facilitate an evolution from formal to informal cooperation based on the frequency of previous relationships. As Dickson (1996: 133) states: "Collaboration creates indebtedness and reciprocity. Whether the collaboration is ultimately successful or not, a personal relationship is often established which may prove useful in the future." Personal interactions facilitate the transmission of values and enable the formation of judgements. The accumulation of these interactions, as Fleck (1996: 106) argues, "helps to

create distinct communities which coalesce around particular issues, sometimes sharing consensus over views, sometimes gaining a sense of community not from consensus, but from a continuity in the patterns of disagreement and conflict.... Such communities, mediated by informal information and communication, constitute the primary context within which expertise is deployed and play an important part in the formation and expression of that expertise." During every period of interpersonal interaction the uncertainty with respect to the particular interrelationship is reduced. The level of trust grows and becomes a foundation for productive intracorporate knowledge sharing relationships in the future.

TOOL #5: DOMINANT CORPORATE CULTURE

The heterogeneity in the firm's workforce can also be reduced by stimulating the development of a dominant corporate culture (Bartlett and Ghoshal, 1989; De Meyer, 1991). A strong corporate culture institutionalized within a multinational enterprise can establish a corporate identity and create some consistency in the norms and values of the geographically spread employees. Organizational culture refers to a system of shared meaning held by members that distinguishes the organization from other organizations (Becker, 1982) and is typified as strong as the organization's core values are both intensely held and widely shared. In many corporations norms and values are not explicit and can only be understood by perceiving the philosophical rationale that lies behind management behaviour (Campbell and Yeung, 1991). A corporate culture that relies on shared norms and values is a robust and flexible means of coordination and can reconcile contradictory forces (Bartlett and Ghoshal, 1989). A rich corporate culture, however, is difficult to build and difficult to sustain. As stated by Mintzberg (1991: 353): "The fact is that there are no five easy steps to a better culture [...] Effective ideologies are built slowly and patiently by committed leaders who establish compelling missions for their organizations, nurture them carefully, and care deeply about the people who make them work."

Three forces can be distinguished, however, that play a particularly important part in building and sustaining a corporate culture (Robbins, 1989: 474): selection practices, socialization methods, and the actions of top management. The explicit goal of selection processes is to assess the candidate's skills and know-how to perform the job. In most cases, however, the decision as to who is hired will also be significantly influenced by the decision maker's judgement of how well the candidates fit into the organization. As a consequence, a corporation can select employees who have common values or at least a good portion of those values. In stimulating and facilitating a further adaptation to the organization's norms and values after an employee has been recruited, socialization programs are often in place. Although very costly, socialization programs are aimed at creating more conformity in the workforce (Ashforth and Saks, 1996). The actions of top management also have a major impact on the organization's culture (Hambrick and Mason, 1984). Through what they say and

how they behave, senior executives establish norms and values that filter down through the organization.

5.3 MANAGING MEDIA BARRIERS

No matter how advanced and effective the prevailing knowledge sharing complexity reduction system in a corporation, effectuating the transfer, application, and integration of knowledge still is a complex assignment. The complicating influence of the four determinants underlying the complexity barriers, as discussed in the former section, can be partially reduced, but the left-over effect in most cases is still considerable. Consequently, to succeed in the transfer of knowledge, one has to cope with the remaining complexity in a particular intracorporate knowledge sharing project. The ability to manage this complexity effectively and efficiently is dependent on a firm's capability to tune the richness of the transfer medium to the prevalent knowledge sharing complexity (see Figure 5.10). Insufficient richness of the transfer medium harms the effectiveness of the transfer, application, and integration of the knowledge item; superfluous capacity of the transfer channel affects the efficiency of the intracorporate knowledge sharing project. Multiple media barriers, however, obscure this fine-tuning process and should therefore be managed by a firm's top management.

In its task to facilitate, corporate management should reduce and remove media barriers hindering the effective and efficient effectuation of knowledge transfer efforts. To reduce these

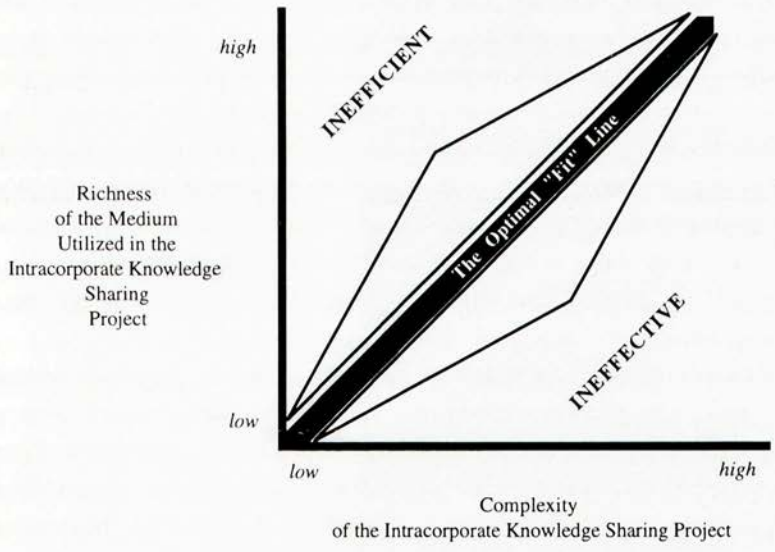


Figure 5.10: Knowledge Sharing Effectuation.

barriers and assist front-line managers in their responsibility to effectuate the transfer of knowledge, a firm's top management has to implement a *Knowledge Sharing Media System*. In line with the argumentation in preceding sections, section 5.3.1 reviews the factors underlying media barriers, while section 5.3.2 builds upon this analysis and infers conclusions regarding the management tools that comprise a knowledge sharing media system.

5.3.1 Origins of Media Barriers

Media richness is defined by Daft and Huber (1987: 14) as "the medium's capacity to change mental representations within a specific time interval," and has two underlying dimensions (Huber, 1991: 103) being the variety of cues that the medium can convey and the rapidity of feedback that the medium can provide. Media richness increases the extent to which information is given common meaning by the sender and the receiver of a message (Daft, Lengel and Trevino, 1987) and hence the richness of a medium can facilitate an effective effectuation of a knowledge transfer. Efficiency rationales, however, enforce an adaptation of the medium richness to the particular complexity of an intracorporate knowledge sharing project and hence the use of relatively "poor" media for relatively simple transfer situations. Finding the optimal fit between the complexity of the particular knowledge sharing project and the richness of the transfer medium is obscured by two sets of media barriers, namely skill-related and resource-related deterrents (see Figure 5.11).

Skills are needed to transfer and adopt knowledge. Apart from social and intercultural skills, the donor and recipient need to master some particular knowledge transfer skills. A lack of these skills can significantly hinder the intracorporate knowledge sharing process. A donor must be able to structure and communicate its knowledge. A sharing effort is more likely to succeed if the donor is able to organize, package, and convey its expertise and skills in a user-friendly way. An innovation becomes only of any value if it is accepted and understood by its receiver. Consequently, being able to think about a users manual or to think about features that may make a knowledge item easier to use, could be as important as the invention itself (Wolff, 1989). Highly intelligent and creative academics, for example, could be lousy knowledge transferors. If they lack the ability to order their knowledge base and are not able to present it in an understandable way, their students will have severe problems in understanding what the teacher tries to explain.

Regarding the skills of knowledge recipients, the ability to absorb is a critical necessity. Besides prior related knowledge with respect to the issue at stake, a knowledge recipient who wants to be able to successfully adopt a knowledge item and to integrate it in its own operations has to possess the skills to register, analyse, and interpret the information which it gets from the knowledge donor in an intracorporate knowledge sharing effort. The knowledge recipient must be able to convert the codified knowledge into a human and process-embodied form of knowledge back again and integrate the procured knowledge in the "thinking" and

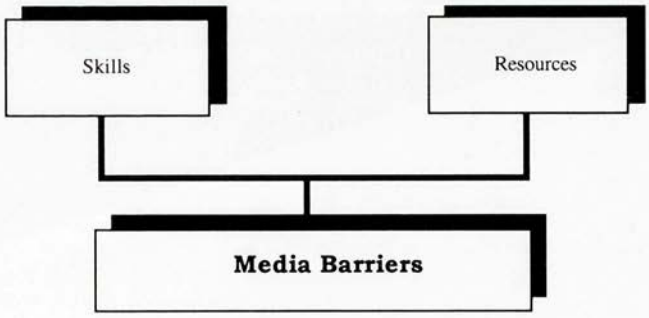
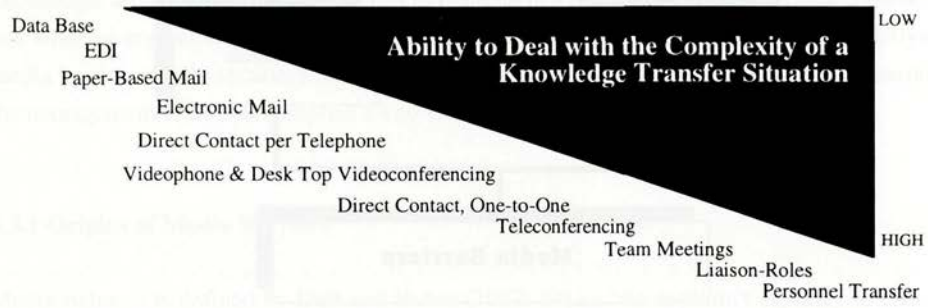


Figure 5.11: Factors underlying Media Barriers.

behavior of the receiving organization. In this respect it is interesting to refer to the experience of many educators in their attempt to transfer knowledge. With a group of students unwilling or unable to absorb, a teacher's skillfully and recipient-friendly organized and presented lecture will not contribute to the students' learning of new knowledge and hence remains an unproductive endeavour.

Apart from skill-related deterrents, a firm's inability to tune the media richness to the complexity involved in a knowledge transfer effort is caused by resource-related impediments. Resources in this respect comprise management time and transfer channels. A medium involving personal face-to-face contact is sometimes a necessity for complex knowledge transfer efforts like turnkey operations or the transfer of process innovations. In these cases the arrangement of team meetings or the expatriation of a front-line manager could be very helpful. The major advantage of these transfer mechanisms is that they facilitate rapid feedback and interpretation of the knowledge item transferred. In situations, however, where a huge amount of simple data must be exchanged, less rich but broadband channels need to be available. Recent advancements in the area of information technology and telecommunications have led to the creation of useful management tools in this respect (e.g., EDI, E-mail, video-conferencing).

Various transfer channels, both passive and active, are optional for the effectuation of intracorporate knowledge sharing efforts (Smilor and Gibson, 1991). Passive transfer channels are disembodied, considered best for rapidly communicating a simple message to a broad audience, and include research reports, computer hardware, and video tapes. Active transfer channels are direct person-to-person interactions, ranging from an electronic mail conversation to expatriation of human-embodied knowledge. They are more likely to result in effective knowledge transfer, but are also more costly in terms of time commitments, travel expenses, and the like. Daft and Lengel (1986) present a scale of media richness that increases from rules to formal information systems, via special reports, planning, direct contact, integrator roles, to group meetings. Although we have adapted the list of transfer channels and extended it with



Adapted from Daft & Lengel (1986)

Figure 5.12: Transfer Channels for Knowledge Transfer.

new ones derived from advancements in the information and communication technologies area (e.g., electronic mail, desk-top computing, videoconferencing, EDI), the basic idea behind the continuum of Daft and Lengel (1986) also accounts for intracorporate knowledge sharing (see Figure 5.12). Making use of the entire set of knowledge transfer channels in an effective and efficient way is to a great extent dependent on the available resources in the organization. The lack of these resources significantly affects the effectuation of intracorporate knowledge sharing efforts throughout the organization.

In line with the argumentation in preceding sections, the review of the media barriers leads logically to the formulation of a proposition on the prerequisite management system for managing these barriers to effectuation. We assume that the availability of knowledge sharing skills and resources is positively associated with the successful effectuation of an intracorporate knowledge sharing effort. Consequently, with respect to the responsibility of a firm's top management in facilitating intracorporate knowledge sharing, the following proposition has been formulated:

Proposition (P4):

The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation.

The management system which reduces the hindering influence of the media barriers and hence reduces the barriers to effectuation in the intracorporate knowledge sharing process is called a *Knowledge Sharing Media System*. Based on the discussion of media barriers in the former section, the next section enumerates the possible management tools of such a knowledge sharing media system.

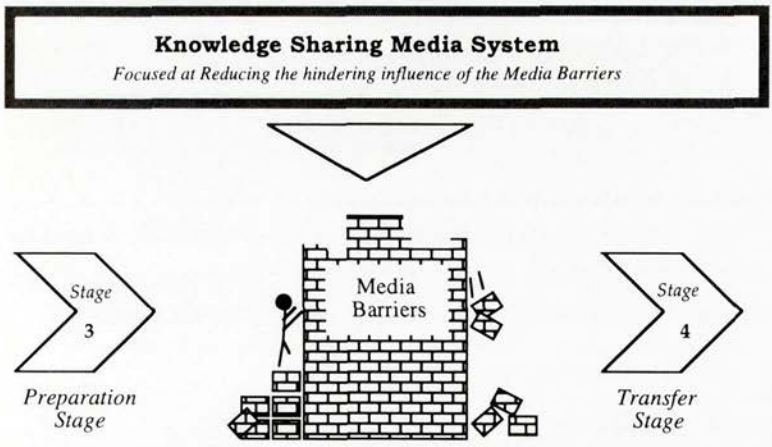


Figure 5.9: The Function of a Knowledge Sharing Media System.

5.3.2 Toward a Knowledge Sharing Media System

Media barriers hinder the effectuation of knowledge sharing efforts and hence have to be managed. To share knowledge effectively and efficiently on an intracorporate basis, front-line managers must be able to tune the richness of the transfer medium to the particular complexity of their knowledge transfer effort. Corporate management in its task to facilitate should reduce the media barriers by institutionalizing a Knowledge Sharing Media System. As a conceptual construct, however, a knowledge sharing media system is not directly observable in practical settings and has therefore to be defined on the basis of observable management tools. The management tools described and discussed in this section are the most representative spurs presented in the literature regarding knowledge transfer media[3].

Three management tools of a knowledge sharing media system are reviewed. Under the assumptions that front-line managers are free in their choice to select whatever transfer channel they want to use (e.g., phone, company visit, inter-unit management meetings), we argue that a firm's top management in its task to develop a knowledge sharing media system can take action regarding the development of knowledge transfer and adoption skills throughout the organization, the application of advanced communication technologies, and the formulation of a deliberate expatriation strategy (see Exhibit 5.2). Linking the management tools to the factors underlying the media barriers (see Table 5.4), shows a match between tools and determinants of media barriers.

---

[3] Although the extent to which a management tool is representative remains somewhat subjective, its representative nature has been verified by logical reasoning based on the factors underlying the media barriers and early checks and pilot studies in practical settings.

THE KNOWLEDGE SHARING MEDIA SYSTEM

A Set of Management Tools

A Knowledge Sharing Media System can be given form and content by using one or more of the following management tools. The most suitable set of tools for a particular firm and the best way of implementing them are supposed to be situation-specific.

(1) KNOWLEDGE TRANSFER SKILL DEVELOPMENT

Facilitate the effectuation of intracorporate knowledge sharing projects by advancing the knowledge transfer skills of the firm's employees

(2) APPLICATION OF ADVANCED COMMUNICATION TECHNOLOGIES

Extending the available set of applicable transfer tools by implementing and facilitating the use of new advanced communication technologies

(3) EXPATRIATION STRATEGY

Extending the available set of applicable transfer tools by developing a carefully managed expatriation strategy

Exhibit 5.2: Management Tools of a Knowledge Sharing Media System.

TOOL #1: DEVELOPING THE EMPLOYEES' TRANSFER SKILLS

Intracorporate knowledge sharing can be effectuated more smoothly if the donor and recipient possess the requisite knowledge transfer skills. A sharing effort is more likely to succeed if the donor is able to organize, package, and convey its know-how in a user-friendly way and if the recipient possesses the skill to listen, analyse, and interpret the transferred information. Corporate management has a few options to facilitate the development of these skills. They can stress the particular complexities in sharing knowledge and emphasize the need to allocate skillful knowledge transferors and acceptors to intracorporate knowledge sharing projects. Corporate management can also arrange internal management courses or seminars to improve the critical transfer and adoption skills of the key knowledge workers throughout the organization. By organizing such management courses the importance of intracorporate knowledge sharing is stressed and front-line managers are made more conscious regarding the possible knowledge transfer pitfalls. As argued above, top management can also expand the number and diversity of people in international management meetings to improve their sociability and intercultural skills.

TOOL #2: APPLICATION OF ADVANCED COMMUNICATION TECHNOLOGIES

In its task to facilitate, a firm's top management can extend the number of transfer channels by exploiting recent developments in the information technology and telecommunications area. It has become apparent from research of many organizational and management researchers (Huber, 1990; Martins, 1994) that the nature and effectiveness of many organizational

Factor underlying Media Barriers Tools of KS Media System	Skill-Related Deterrents	Resource-Related Deterrents
Knowledge Transfer Skill Development	X	
Application of Advanced Communication Technologies		X
Expatriation Strategy		X

Table 5.2: Matching Management Tools and Factors underlying Media Barriers.

processes are changed when advanced information technologies are employed. Consequently, it seems logical to assume that the process of intracorporate knowledge sharing is also affected by these new communication technologies. New computer-aided systems can operate as the shared memory of all organizational members and thus give shape to the knowledge sharing awareness system of an enterprise. Besides these properties, however, advanced communication technologies can also facilitate fast and efficient communication and can furthermore operate as a mechanism whereby multiple members can dynamically exchange solutions to problems (Goodman and Darr, 1996).

Huber (1990: 48) defines advanced information technology as: "devices (a) that transmit, manipulate, analyze, or exploit information; (b) in which a digital computer processes information integral to the user's communication or decision task; and (c) that have either made their appearance since 1970 or exist in a form that aids in communication or decision task to a significant greater degree than did pre-1971 forms." A good example of an advanced information technology with significant implications for the intracorporate knowledge sharing process is electronic mail (E-mail). Electronic mail is the computer-to-computer exchange of messages or structured information. The message is send to one or more persons directly in a fast and efficient way. Moreover, with a portable computer and modem one has access to a global communication network for retrieving messages and sending key documents at any time in any place while one does not need to bother about time-zone problems in communicating internationally. A drawback of E-mail communication is that there is no physical interaction and is therefore only suitable for simple communication processes with a low amount of information exchanged. Moreover, electronic mail is ideal for interpersonal communication, but creates filing and retrieval problems for diffusing corporate-wide information (Kusekoski, 1989).

Another advanced information tool, the Electronic Bulletin Board, offers a solution for the filing and retrieval problems of the electronic mail application. An Electronic Bulletin Board is a knowledge base through which information can be made accessible for the corporation's employees. An electronic bulletin board distributes document-based information across the same corporate-wide network needed for electronic mail. It reduces paper production and time and costs of locating and scrapping obsolete documents are eliminated. An electronic bulletin board provides responsive, consistent access to the information employees need in support of their business activities, but lacks the personalization and interaction of personal contact and requires a commitment to maintain the amount, the timeliness, and accuracy of information.

Too much, outdated, or inaccurate information on an electronic bulletin board will quickly kill off the use of the application and can undermine the viability of the entire system.

Electronic conferencing is another advanced information application which is just taking off within many corporations and has major implications for the effectuation of knowledge transfers. In electronic conferencing (e.g., videoconferencing, desk-to-desk conferencing) one uses transmission channels to transmit audio and video information between groups of people which are geographically separated. Most electronic conferencing systems are introduced in organizations by groups that have been formed initially through face-to-face interaction and which then turn to electronic meetings to augment the conventional ones, often dictated by time pressures, convenience, or task demands (Hamon, Schneer, and Hoffman, 1995). Within a few years, personal products vendors are expected to start integrating electronic conferencing capability into their products and hence corporations will be able to put video conferencing opportunities on the desk of an executive or engineer for less than the costs of a single airline ticket. Although the weakness of this communication tool is still in the problems concerned with handling tremendous volumes of information generated by multiple data streams from audio, video, text, and data, new applications for satellite-business conferencing are likely to enhance its value in the coming years. Research suggests that a video conferencing system is somewhere between conventional telephone and face-to-face meetings in terms of media richness (Kydd and Ferry, 1994). Electronic conferencing, however, due to the lack of other communication signals (e.g., smell, hand shake), is not and will probably never be a full substitute for in-person contact.

Advanced information and communication technologies like EDI, cellular telephone, E-mail, group ware, voice-mail, desk-top computing, and video-conferencing can enable an improvement of the effectuation of intracorporate knowledge transfer processes. The new technologies enable "any-time-any-place" communication and are a valuable addition to the current set of communication channels. Owing to this extension of the set of knowledge transfer channels it will become ever more easy to adapt the applied channel to the complexity of the particular situation and hence to use the organization's resources as efficient and effective as possible.

TOOL #3: EXPATRIATION STRATEGY

Finally, in its attempt to reduce media barriers a firm's top management can rely upon the expatriation of front-line managers based on a deliberate expatriation strategy. In some situations, the leverage of existing knowledge items requires a very rich transfer channel. The expatriation of front-line managers will then be the only capable transfer channel to leverage existing knowledge. The knowledge at stake in a knowledge transfer effort, for example, can be too complex to be codified and exploitation of the human-embodied knowledge item can only be achieved by transferring its "owner." Although companies need to realize that expatriates are expensive (two to three times the cost of the same employee in its home state),

the leverage of their know-how and experience can be valuable enough to facilitate the transfer of personnel abroad.

Expatriates carry with them a wealth of home company knowledge. They may understand the systems and processes of the home office. They know the people in the home office and whom to contact to get things done. They understand the company's overall strategies and goals. Consequently, expatriation can be the preferred knowledge transfer channel in particular situations and hence a deliberate expatriation policy must be formulated by corporate management to facilitate this process and improve the chances for success in those cases. Following Zetlin (1994), three elements of a successful expatriation assignment are: choosing the right candidate, properly preparing the executive and the executive's family for the overseas assignment, and providing ample support and contact with the home office while the executive is abroad.

First of all, corporate management needs to understand that although someone may be the most suitable person for an assignment abroad based on his or her functional know-how, certain types of persons are more likely to perform well in an overseas assignment than others. Consequently, a well-structured selection procedure needs to be in place which evaluates possible candidates regarding their know-how on the subject area, but also on their personality profile. Standard personality tests have to be developed to profile the required traits of a successful expatriate (e.g., adventurous, flexible, open-minded, stable family life). Moreover, it is very important to understand that it is not recommendable to force employees to accept an expatriation assignment. Only highly motivated people who are willing to sacrifice personal comfort for longer-term personal growth will be able to succeed in an environment which strongly differs from the situation at home.

A second prerequisite condition for successful expatriation is to properly prepare the executive and the executive's family for an overseas assignment (Black and Mendenhall, 1989; Park, Hwan, and Harrison, 1996). Both will be confronted with significant cultural differences and it is therefore necessary to prepare them and make them recognize these cultural differences. The management process in each country, for example, is shaped at least partially by the culture of the country which affects how management decisions are made, how consensus is reached, and how employees are expected to interact with one another. In some countries, as argued by Richardson and Rullo (1992), agreement on the surface may mean nothing. In others, open debate and criticism of ideas are welcomed. In still other countries, the same thing will be seen as a personal affront to the individual's competency and integrity. Consequently, although one can be technically speaking the best financial manager in a corporation, without cultural he or she will be likely to struggle in accomplishing his or her goals. Corporations can prepare their managers for overseas assignments by sending them to courses, providing them relevant literature, and facilitating the consultation of local managers or their predecessors in that region. To circumvent communication problems while being abroad, Park, Hwan, and Harrison (1996:95) advise that "foreign language training should

become a key aspect of expatriation training in order to facilitate more effective communication within foreign subsidiaries."

Finally, an expatriation strategy must also ensure that the expatriate is provided with ample support from the home office. Expatriates tend to lose touch with the home office when they are abroad. Being geographically far away often also means that people tend to leave expats out of various information flows and hence corporate news often reaches them weeks after the fact, if they hear it at all. If corporate management decides to send someone abroad, it has also the responsibility to keep that manager informed. Although corporate management may not need to do this task itself, it should occasionally monitor the communication channels to check their effectiveness.

5.4 SUMMARY AND CONCLUSIONS

The decision to start an intracorporate knowledge sharing project and its subsequent execution have been split for analytical purposes in this research project. While the decision phase has been studied in chapter four, the execution phase of intracorporate knowledge sharing has been investigated in this chapter. The execution phase commences rather directly after the decision phase, unless it is held up by some logistical or resource problem, and comprises a preparation and a transfer stage. In managing the execution phase, a firm's top management can focus its task to facilitate in two directions. On the one hand, corporate management can take action with respect to the antecedents of the complexity of intracorporate knowledge sharing projects to reduce the complexity barriers and hence, on average, the complexity to share knowledge. On the other hand, corporate management can invest in the firm's transfer media to reduce the media barriers and enable the front-line managers to deal with the particular complexity of the knowledge sharing effort.

Based on the assumption that numerous complexity barriers hinder the effectuation of intracorporate knowledge sharing efforts, in this chapter it has been posed that the successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system, called *Knowledge Sharing Complexity Reduction System,* reducing the complicating influence of the complexity barriers. By giving content and form to a knowledge sharing complexity reduction system, corporate management can neutralize and reduce the hindering influence of the complexity barriers and hence smooth the knowledge transfer efforts of their front-line managers lower down the hierarchy. As a theoretical construct, a knowledge sharing complexity reduction system can be developed by implementing one or a combination of the following management tools: knowledge abstraction policies, increased user involvement in knowledge development, increased triability of knowledge items, a corporate-wide language, regular management meetings, a dominant corporate culture, financial measures and rewards, formal statements by top management, organizing for knowledge interdependencies, institutionalizing knowledge champions, and a corporate culture

activating a social pressure to share. These tools are the most representative spurs presented in the literature regarding the complexity of knowledge transfer efforts.

No matter how advanced and effective the prevailing knowledge sharing complexity reduction system in a company, effectuating the transfer, application, and integration of knowledge remains a complex assignment. This remaining complexity can be managed, a task which is hindered by various skill and resource-related media barriers. For effective and efficient knowledge sharing, front-line managers must be able to tune the richness of the transfer medium to the characteristics and complexity of a particular knowledge transfer situation. Consequently, a second but related way corporate management can influence the success of the effectuation of an intracorporate knowledge sharing effort between managers throughout the hierarchy is by implementing a *Knowledge Sharing Media System* reducing the media barriers to effectuation. A knowledge sharing media system could be given content and form by implementing one or a combination of the enumerated management tools, being the development of knowledge transfer and adoption skills throughout the organization, the application of advanced communication technologies, and the formulation of a deliberate expatriation strategy.

We are now able to integrate the key findings of the theoretical part of this study in an integrated framework (see Figure 5.10). Building upon a review of the existing literature and an analysis of the outcomes of former research projects, we have presented a conceptualization of the intracorporate knowledge sharing process, a managerial classification of the assumed barriers to intracorporate knowledge sharing, and an integrated set of propositions on the various management systems stimulating and facilitating intracorporate knowledge sharing. An integrated framework including these key contributions encompasses many of the variables that effect the intracorporate knowledge sharing process. Therefore, the framework captures a lot of the complexity involved in actual managing intracorporate knowledge sharing between the affiliates of a multinational enterprise. The integrated framework allows the observation, analysis, understanding, and normative assessment of the managerial problems and responsibilities involved and could act as a tool for future endeavours in practical settings to increase the stimulating and facilitating properties of a firm's corporate context regarding intracorporate knowledge sharing.

In its responsibility to stimulate and facilitate intracorporate knowledge sharing, corporate management should aim at removing and reducing the assumed barriers to initiation (i.e., awareness barriers, interest barriers) and effectuation (i.e., complexity barriers, media barriers) by implementing a bundle of knowledge sharing systems for coping with awareness, persuasion, complexity reduction, and media matters. These management systems are theoretical constructs and hence should be developed by implementing one or a combination of the related management tools enlisted in this study. Interesting to note in this respect, as we also did at the end of chapter four, is the overlap which exists between the management tools underlying both management systems. For example, the management tools giving form and content to a Knowledge Sharing Persuasion System can also be used to establish a Knowledge

Sharing Complexity Reduction System in that these tools can help in reducing the complicating influence of the lack of motivation on the effectuation of an intracorporate knowledge sharing effort. By using some distinct management tools, both management systems can be activated at the same time. This not only shows that the management systems are highly interrelated and should be highly integrated where possible, but also points to the mutual reinforcing nature of these management systems.

By implementing the knowledge sharing management systems, top management can onset a dynamic process. Transfer success has a positive influence on subsequent intracorporate knowledge sharing projects by affecting the barriers to intracorporate knowledge sharing and contributing to the development of the management systems. With respect to the barriers to intracorporate knowledge sharing, transfer success improves the motivation of the actors involved, increases the level of trust, and reduces the heterogeneity inside the firm and hence decreases the obstructing and complicating effects on knowledge sharing efforts in future.

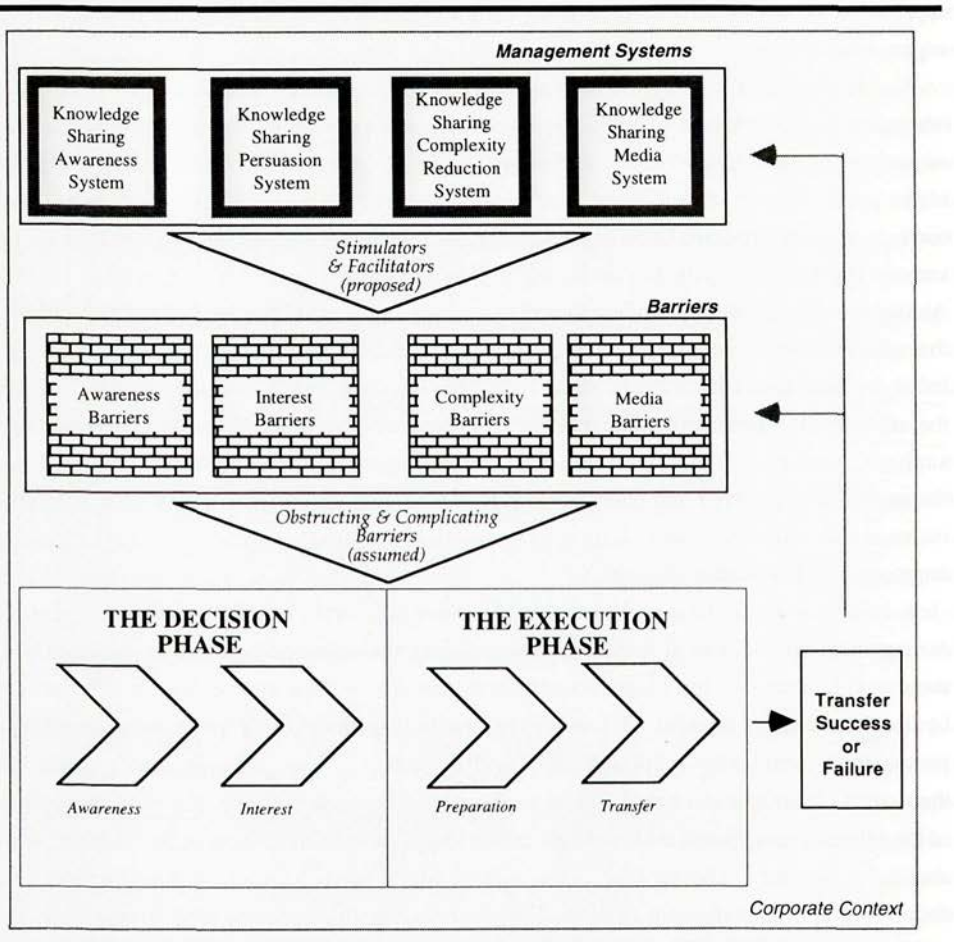


Figure 5.10: Integrated Framework on Managing Intracorporate Knowledge Sharing.

Regarding the management systems, transfer success strongly adds to the development of a stimulating and facilitating corporate culture. Therefore, it can be stated that if a firm is able to increase the number of knowledge transfer "successes" the stimulating and facilitating efforts start to reinforce themselves.

Summarizing, chapter four and five have indicated that it is not an easy task for top management to stimulate and facilitate intracorporate knowledge sharing but that's probably the reason why managing intracorporate knowledge sharing can add enormous value to the corporation. Top management has to implement a bundle of strongly interrelated management systems by selecting those management tools which best suit the firm-specific circumstances. Notwithstanding the enumeration of numerous management tools giving content and form to one of the four management systems, no conclusions were formulated in the theoretical part of this thesis on suitable combinations of management tools and the best way to implement them. Besides the illustrative properties of the case studies, the empirical research, as presented in the next four chapters, could provide this research with a significant contribution in this respect.

6

Managing Intracorporate Knowledge Sharing in Three Practical Settings in Europe

Methodology

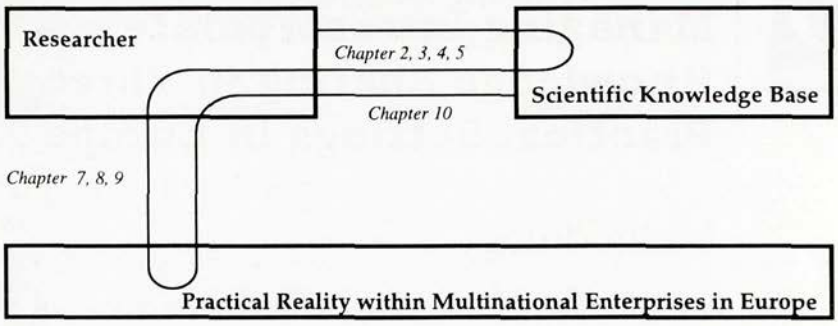
"As long as the building of frameworks is based on in-depth empirical research, it has the potential to not only inform practice but to push the development of more rigorous theory."

- M.E. Porter (1991: 98).

6.1 INTRODUCTION

In this research project, the empirical research has been preceded by a conceptual phase in which an attempt was made to formulate some preliminary propositions. Instead of a research approach aimed at the generation of grounded theory, the integrated framework and the related propositions have been deducted from an extensive review of the literature complemented by some early checks and pilot studies in practical settings. In search of the management systems stimulating and facilitating intracorporate knowledge sharing between internationally dispersed companies of the multinational enterprise, it has been argued that the leverage of a firm's knowledge reservoir can reinforce and strengthen its units' competitive strategies by savings in development expenses, pro-active marketing strategies, the achievement of best practice levels, and faster product innovation. To exploit these advantages and to establish a fit between the required and actual level of intracorporate knowledge sharing, corporate management should institutionalize management tools which reduce or remove barriers blocking, hindering, and complicating the transfer of knowledge inside their firms. Four propositions have been posed regarding the requisite management systems for managing intracorporate knowledge sharing. As conceptual constructs, however, these management systems are not directly observable in practical settings and hence have been defined on the basis of observable management tools.

Based on and structured by the theoretical groundwork, the next three chapters present knowledge sharing practices, barriers, stimulators, and facilitators in some practical settings.



Based on De Leeuw (1993)

Figure 6.1: A Process Description of the Research Project.

Case study research has been done in order to learn how managers think about and manage the intracorporate knowledge sharing process inside the companies they work in. By explicating the research design, this sixth chapter operates as the "linking pin" between the theoretical and empirical parts of this study. A strictly defined and well structured research methodology is necessary to ensure that the research findings of the three case studies can be compared. Moreover, the aim of this research project is to come up with some well-grounded conclusions on managing intracorporate knowledge sharing and this requires an aggregation and integration of the theoretical and empirical inferences. Without a strict and well structured research design, the groundwork would be loosely integrated and hence too weak for stating concluding remarks.

In the next section, a description of the research design is presented, linking the empirical part of the research project to its theoretical foundation (see Figure 6.1). Here, the key constructs of the theoretical groundwork are operationalized, the number and selection of the case study objects explained, and the applied methods for data collection explicated. Thereafter, the key characteristics of a "European style of management" are investigated. As stated and explained in the introductory chapter, the empirical research focuses on the process of intracorporate knowledge sharing in multinational enterprises in Europe and in this respect we distinguish the particular implications of managing the knowledge exploitation process in a European context.

6.2 RESEARCH DESIGN

The empirical part of the research project "*Managing Intracorporate Knowledge Sharing*" consists of case studies that investigate the complex social phenomena of managing intracorporate knowledge sharing. A case study is "a history of a past or current phenomenon, which is often drawn from multiple sources of evidence" (Leonard-Barton, 1990: 249) and focuses on learning to understand the dynamics present within single settings (Eisenhardt,

1989). The case study strategy has been applied in this particular research project because its focus is on a contemporary phenomenon within some real-life context and because the boundaries between phenomenon and context are not clearly evident yet (Yin, 1989). The existing knowledge base on managing intracorporate knowledge sharing faces a lack of structure, and a lot of relationships between various variables are still unknown or unclear. The possibility to retain holistic and meaningful characteristics of managing intracorporate knowledge sharing in the day-to-day reality of a number of multinational enterprises makes it easy to see why the case study approach is the most appropriate research strategy for this research project.

So, if one wants to describe how multinational enterprises manage the process of intracorporate knowledge sharing between their internationally dispersed companies one is forced to conduct what in the final analysis would be a history or a case study. It is not appropriate to rely on a survey or an examination of archival records because many interrelationships between variables are still unclear. If carefully performed, a case study can devise a case description against which researchers and managers can compare their own theoretical constructs and practical experiences. Our case study descriptions illustrate knowledge sharing practices, barriers, stimulators, and facilitators in practical settings. This enables us to learn how practical managers think about and manage the intracorporate knowledge sharing process inside their companies. Apart from the illustrative purposes of the case study strategy, a cross-case analysis enables us to draw conclusions on prevailing combinations of management tools and ways of implementing them.

In giving structure and content to the case study methodology, decisions have been made with respect to the following issues:

- Operationalization of Key Constructs;
- Number of Case Objects;
- Selection of Case Companies; and
- Data Collection Methods.

In the remainder of this section, we elaborate on these issues and explicate the details of the decisions made.

ISSUE #1: OPERATIONALIZATION OF KEY CONSTRUCTS

The aim of this research project, as argued in the introductory chapter, has never been the development of a universally applicable and all-encompassing theory of managing intracorporate knowledge sharing. More modestly, the aim has been to develop an integrated framework proposing a set of constructs that are related to each other by some preliminary propositions, bounded by the author's assumptions. The set of constructs and propositions enables both scientists and managers to structure and communicate their thoughts, observations, and experiences regarding managing intracorporate knowledge sharing in

multinational enterprises. Operationalization of the key constructs has an important role to play in this respect by defining the key constructs of the theoretical part of this study in observable variables.

Operationalization means that meaning is assigned to a construct or a variable by specifying the activities necessary to measure it. An operational definition gives meaning to a construct or variable by spelling out what the investigator must do to measure it (Kerlinger, 1986). Operationalization makes it possible to shuttle and establish a link between the theoretical and empirical part of the research project. Strangely enough, operationalization in case study research is a methodological issue that has received very little attention in the strongly growing literature on the case study method (De Man, 1996). While a key issue in giving structure and

P1: Knowledge Sharing Awareness System	**P2: Knowledge Sharing Persuasion System**
The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects.	*The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects.*
MANAGEMENT TOOLS:	***MANAGEMENT TOOLS:***
Knowledge Codification, Registering, and Storage	Financial Measures and Rewards for Knowledge Sharing
Networking	Commitment and Formal Statements by Top Management
Assigning Knowledge Exploration Responsibilities	Organizing for Knowledge Interdependencies
Institutionalizing Knowledge Sharing Intermediaries	Institutionalizing Knowledge Champions
Implementing Internal Benchmark Procedures	Corporate Culture Activating a Social Pressure to Share
P3: KS Complexity Reduction System	**P4: Knowledge Sharing Media System**
The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing.	*The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation.*
MANAGEMENT TOOLS:	***MANAGEMENT TOOLS:***
Knowledge Abstraction & Codification	Knowledge Transfer Skill Development
Increasing the User Involvement & Triability	Application of Advanced Communication Technologies
Establishing a Corporate-Wide Language	Expatriation Strategy
Arranging Regular Management Meetings	
Dominant Corporate Culture	
Financial Measures and Rewards	
Commitment of and Formal Statements by Top Mgt.	
Organizing for Knowledge Interdependencies	
Institutionalizing Knowledge Champions	
Creating a Strong Corporate Culture	

Note: Some management tools can activate more management systems at the same time. All the management tools linked to the Knowledge Sharing Persuasion System, for example, can also be used to give form and content to a Knowledge Sharing Complexity Reduction System as a way to increase the motivation of the actors involved.

Table 6.1 Tool Table for Four Knowledge Sharing Management Systems.

form to a quantitative research approach, operationalization has until now been of less concern for a research strategy that focuses on more qualitative evidence.

Sooner or later, scientific investigators must face the necessity of measuring the variables of the relations they are studying. Sometimes measurement is easy, sometimes difficult. Operational definitions, however, are indispensable ingredients of scientific research and for case studies they can operate as important and useful bridges between theory and empirical observations. Despite the complexity inherent in real-life cases, these observations must be brought back to a generic contribution to our scientific knowledge base. The ultimate aim remains to validate or falsify the content of this knowledge base and this kind of analysis becomes impossible if key constructs are not operationalized. Despite the dangers of extreme operationalization in the social sciences and the growing emphasis on firm-specific circumstances (Mahoney, 1993), it can be safely said that operationalization is a healthy step to take in every field of study. "To insist, however, that every term we use in scientific discourse be operationally defined," Kerlinger (1986: 30) argues, "would be too narrowing, too restrictive, and ... scientifically unsound."

In search of management systems stimulating and facilitating intracorporate knowledge sharing between internationally dispersed companies of the multinational enterprise. Four propositions were posed on the required management systems for managing intracorporate knowledge sharing. Knowledge sharing awareness systems, knowledge sharing persuasion systems, knowledge sharing complexity reduction systems, and knowledge sharing media systems, however, are, as mentioned above, not directly observational. Therefore, they have to be operationalized to determine how these management systems are implemented in practical settings. The management tools comprising the management systems, as presented in chapter four and chapter five, are helpful in this respect and act as the "linking pin" between the theoretical and empirical parts of the research project. Table 6.1 presents the management tools giving form and content to the various management systems stimulating and facilitating intracorporate knowledge sharing.

The case studies in this research project are used to illustrate the validity of the theoretically deduced propositions. Each case description concludes with an examination of the extent to which the presented management systems for managing intracorporate knowledge sharing are given content and form. The registered management tools within the case company are confronted with the tools of the knowledge sharing management systems. By reviewing which and how many management system's management tools can be discerned within the confines of the case company, some tentative conclusions are formulated on the barriers still obstructing and hindering the intracorporate knowledge sharing process.

ISSUE #2: NUMBER OF CASE OBJECTS

A critical decision facing the researcher in doing case study research, as Dyer and Wilkins (1991) argue, is specifying the population and hence the set of case study objects. Every

researcher effectuating case study research has to make a trade-off between the benefits of comparative insights and the deep understanding of a particular social setting. On the one hand, Eisenhardt (1989: 545) argues that a single case study is often not sufficient to create and highlight theoretical constructs. She states: "With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing, unless the case has several mini-cases within it." Effectuating and comparing multiple case studies provides the researcher with contrasting or identical observations which further verify or falsify the theoretical constructs. On the other hand, Dyer and Wilkins (1991) argue, the focus on building and testing general constructs in multiple settings can harm the visibility of the interrelations with the context of a particular setting while the aim of any management researcher needs to be to get as close as possible to the world of managers and to interpret this world and its problems from the inside. A single case study can give more attention to the unique and typical characteristics of the particular social scene and reveal the deep structure of social behavior. By using a limited number of well-elaborated cases, one gives the reader the chance to understand the social setting and to become aware of the complex set of interrelated variables that gives shape to political behavior in that particular situation.

This research project focuses on what kind of management systems stimulate and facilitate intracorporate knowledge sharing between the internationally dispersed companies of the multinational enterprise. The primary unit of analysis is the multinational corporation. The unstructured nature of the central research topic asks for an in-depth study of the phenomenon in a real life setting. The observations of and insights into the issues surrounding managing intracorporate knowledge sharing in one particular corporation would have formed a significant empirical contribution on its own because few management scientists have investigated this particular issue in detail in the past. In Yin's terminology (1989), the single-case design would be eminently justifiable in this particular situation because the case serves a revelatory purpose.

Arguments, however, can also be brought up to include more than a single case in this research project. As Yin (1989: 52) states, "the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust." Multiple cases justify a stronger contribution to the scientific knowledge base because they permit replication and extension among individual cases (Eisenhardt, 1989; 1991). Multiple cases can extent the diversity in the research findings and through this diversity contribute to the understanding of the investigated phenomenon. Our strategic "fit" model, as presented in chapter two, indicates that a diverse set of approaches can be expected based on differences in a firm's knowledge environment, corporate strategy, and administrative heritage. As a consequence, cases which are selected based on these differences instead of their communality could generate a wide and rich set of empirical illustrations of the phenomenon of managing intracorporate knowledge sharing.

Regarding the research project "*Managing Intracorporate Knowledge Sharing*," the decision has been made to effectuate a comparative case study of three case companies. All three case companies are described in rather general terms in line with the strategic "fit" model. This means that each firm's knowledge environment, corporate strategy, administrative heritage, and implemented management tools have been described from an intracorporate knowledge sharing point of view. To generate a better understanding on how some of the management tools stimulating and facilitating intracorporate knowledge sharing can be implemented, one in-depth study was performed on the largest enterprise by adding an additional unit of analysis. Within this particular case the general description on managing intracorporate knowledge sharing is complemented by an in-depth analysis of some of the implemented management tools. The conduct of embedded case studies (Yin, 1989) in all three companies would require resources and time beyond the means of the researcher. Moreover, because the in-depth study has been performed before the other two case-studies commenced, the researcher was able to distinguish more efficiently and effectively the most interesting and discriminating issues in the two remaining case companies.

ISSUE #3: SELECTION OF CASE COMPANIES

In selecting the objects for the comparative case study research, a theoretical sampling plan has been followed, meaning that cases were chosen for theoretical rather than statistical reasons (Leonard-Barton, 1990). The three case study companies (i.e., Unilever, Canon Europe N.V., and ITT World Directories, Inc.) were chosen based on their differences, as enumerated in Table 6.2. They varied significantly on the key dimensions of the strategic "fit" model on managing intracorporate knowledge sharing, being a firm's knowledge environment, corporate strategy, and administrative heritage. The diversity in the cases gives rise to alternative perspectives on and approaches regarding the issue of managing intracorporate knowledge sharing. Moreover, the differences between the case study objects can provide us with research findings indicating the variety in the possible combinations of management tools and ways of implementing them.

Case study Objects	Unilever	Canon	ITT World Directories
Key Characteristics			
Products	Food Personal Products Detergents Chemicals	Business Machines Cameras Optical Products Chemicals	Directory Products (Yellow Pages)
Revenues Worldwide	$ 45 billion	$ 19 billion	$ 500 million
Number of Employees	± 304,000	± 70,000	± 2,300
Corporate Background	Anglo-Dutch	Japan	USA
Inquiry focused on:	Foods Europe Personal Products Europe	Canon Europe N.V.	ITT World Directories' operations in Europe

Table 6.2: A Comparison of the Selected Case Companies.

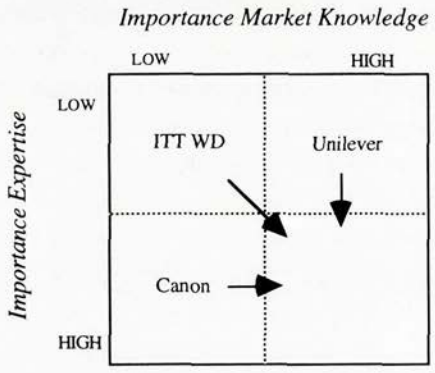


Figure 6.2: Knowledge Environment of Case Study Objects.

With respect to the knowledge environment of the three firms (see Figure 6.2), for example, Unilever has always differentiated itself by local adaptation strategies (high importance market knowledge, low importance expertise), Canon has been well known for leveraging its technological excellence (high importance expertise, low importance market knowledge), and ITT World Directories has sustained its above average profit margins based on their governmentally granted monopoly positions (low importance of both market knowledge and expertise). Although all three firms are now moving to the right lower corner, their "starting position" differs. Another important decision criteria in selecting the case study objects concerned the differences in administrative heritage. The American background of ITT, the Japanese background of Canon, and the Anglo-Dutch background of Unilever have a strong influence on the case companies' European operations and the way they manage their businesses in this region.

After the three firms were contacted and informed about the details of the research project, each corporation was willing to cooperate and allowed the researcher to collect the required information through interviews and analysis of internal documentation. Unilever also agreed to perform the inquiry in two divisions: Unilever Foods and Unilever Personal Products. By replicating the investigation in Unilever Foods and Unilever Personal Products, we were able to study the internal differentiation in perspectives and approaches regarding the management of intracorporate knowledge sharing. Moreover, doing research in these two divisions provided us with the opportunity to compare the implementation of the same set of management tools in two quite autonomous operating organizations.

ISSUE #4: DATA COLLECTION METHODS

Before entering the field, our data collection instruments had to be chosen. The case study's unique strength versus other research strategies like experiments, surveys, and histories is its

ability to deal with a full variety of evidence - documents, questionnaires, interviews, and observations. Case studies typically combine data collection methods (Eisenhardt, 1989) which was recognized in this research project as we have used multiple sources of evidence (see Table 6.3): review of publications of "outsiders" giving their perspective on the case company (external documents), analysis of documents of "insiders" regarding all kinds of issues concerning the case company (internal documents), and interviews with a selected number of corporate and front-line managers. The data collection process in each case study started with a review of articles in newspapers and journals on the corporation and a scan of the firm's externally oriented documents (e.g., annual reports, company descriptions). The general information on the history of the corporation and the various developments in its business environment was helpful in generating a first perspective on the firm. It was also a useful foundation for the more internally oriented data collection processes, and was furthermore valuable in conjunction with other sources of information in producing the case description of the corporation.

After a general overview had been created, interviews were held with the most appropriate employees. In the Unilever corporation, the researcher interviewed, in the period between December 1994 and February 1996, 35 employees ranging from operational managers to one of the co-chairmen. Canon Europe facilitated 13 interviews with the president, vice-presidents, staff members, and divisional managers of Canon Europe in the period from January 1995

	Period	*Number of Interviewees*	*Corporate Management versus Front-line Management*	*Number of Internal versus External Documents*
Unilever	December '94 - February '96	35 Interviewees	Corporate Management: 20 - 1 Co-Chairman - 12 Product Group Managers - 7 Process Leaders Front-line Management: 15 - 4 Marketing Managers - 4 Sales Managers - 4 Operations Managers - 3 Innovation Center Managers	54 Internal 7 External
Canon	January '95 - July '96	13 Interviewees	Corporate Management: 13 - 1 President Canon Europe - 5 Vice-Presidents Canon Europe - 7 Product & Process Leaders Front-line Management: 0	11 Internal 5 External
ITT WD*	July '95 - February '96	10 Interviewees	Corporate Management: 5 - 1 ATLAS Project-Leader - 4 Product & Process Leaders Front-line Management: 5 - 1 Marketing Manager - 1 Financial Manager - 1 Operations Manager - 1 Sales Manager - 1 Manager Strategic Planning	34 Internal 3 External

* Apart from the formal research activities as reported in this Table, the researcher worked for this organization for several years in a job not related to the subject area of this study and hence without influencing the organizational processes in this respect.

Table 6.3: The Nature of the Data Collection: Interviews and Document Analysis.

until July 1996. In the ITT World Directories firm 10 meetings were arranged with divisional and company managers in the period between July 1995 and February 1996. The interviews held within the case companies were all, using Yin's terminology (1989: 89), of an open-ended nature. This means that the investigator asked key respondents for the facts of a matter as well as for the respondents' opinions about events. A report was drawn up of each meeting based on a tape of the conversation. The report was always sent to the interviewee guided by a request for his or her comments. In most cases, a follow-up meeting was arranged to discuss the report of the meeting and to allow the researcher to scan and review some internal documents on the subject area.

A cascade process was applied in arranging the interviews, meaning that the interviews were organized in such a way that we went down the organizational hierarchy over time during the case study. The investigation always commenced with some meetings with senior management, subsequently interviews were arranged with those corporate managers responsible for the implementation of a particular management tool of effect on the intracorporate knowledge sharing process, and finally the researcher planned some meetings with front-line managers in the subsidiaries. The interviews with front-line managers have not been effectuated within the case study of Canon Europe N.V. and hence the case study description of this firm is dominated by a corporate management perspective on the process of intracorporate knowledge sharing. Apart from the interviews, each interviewee has been asked to provide the researcher with related internal documentation. For this research project, Unilever, Canon Europe, and ITT Word Directories have provided access to respectively 54, 11, and 34 internal documents most often regarding particular management tools stimulating or facilitating intracorporate knowledge sharing.

The initial interviews with the senior managers of the corporate center focused on collecting the required data concerning the four dimensions of the strategic fit model, being the firm's knowledge environment, corporate strategy, administrative heritage, and implemented management tools. These senior managers provided the researcher with their perspective on the key strategic thrusts and the vision underlying the firm's corporate strategy in the past, today, and for the future. They also explicated the perceived importance of intracorporate knowledge sharing for their organization and gave some indications on the most important management tools in this respect. Subsequently, meetings were arranged with those corporate managers responsible for the implementation of particular management tools of effect on the intracorporate knowledge sharing process. The interviews with these managers were limited to an in-depth discussion and review of a particular management tool and their influence on the intracorporate knowledge sharing process in the organization. Finally, interviewees at the front-line level in the organization have been asked to describe the perceived barriers obstructing and complicating their intracorporate knowledge transfer efforts and the prevalent management tools assisting them in the initiation and effectuation of this process. Front-line managers gave their viewpoint on the stimulating or facilitating properties of particular management tools at lower levels down the organizational hierarchy. The interviews with

front-line managers were used to validate the tentative conclusions regarding the barriers still obstructing and hindering the intracorporate knowledge sharing process. The tentative conclusions were formulated on the basis of the inquiry concerning and interviews with corporate management regarding those implemented management tools that stimulate and facilitate intracorporate knowledge sharing.

The case descriptions, as depicted in Figure 6.3, were roughly structured according to the concepts determining the actual and required level of intracorporate knowledge sharing as presented in chapter two. After a short introduction, a description is given of the knowledge environment of the corporation and the various changes in the characteristics of products and competitive strategies in recent years. Next, the "value added" strategy, size, and scope of the corporation are exhibited and implications on the importance of intracorporate corporate knowledge sharing explained. After an indication is formulated on the required level of intracorporate knowledge sharing, the administrative heritage of the corporate context is

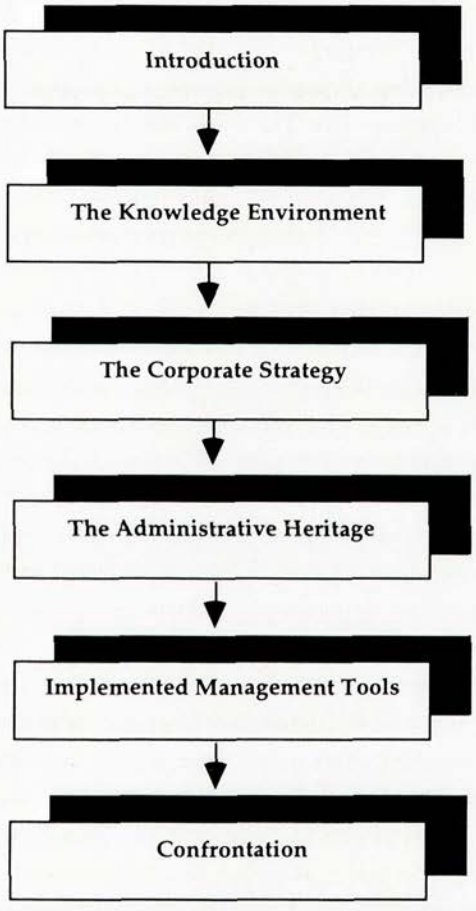


Figure 6.3: The Prescribed Structure of the Case Descriptions.

analyzed and its influence on the intracorporate knowledge sharing process specified. In the fifth section a description is given of the implemented management tools forming the particular management systems for managing intracorporate knowledge sharing. Finally, the particular situation in a case company is compared and confronted with the integrated framework on managing intracorporate knowledge sharing. Conclusions are formulated and validated on the underdeveloped management systems and hence on the barriers still blocking or hindering the intracorporate knowledge sharing process in these firms.

6.3 RESEARCH CONTEXT: MANAGING IN A EUROPEAN CONTEXT

The empirical research activities have been limited and focused on European operations of three multinational enterprises. To be able to distinguish the particular implications of managing intracorporate knowledge sharing in a European context, the key characteristics of a "European style of management" are investigated in this section. Thurley and Wirdenius (1991) claim that international companies operating in European countries can and should make a strategic choice whether or not to develop a "European" approach or style of management. After the acceptance of the Threaty of Maastricht, and with the new European Union preparing to absorb applicants from the European Free Trade Association, their claim is becoming even more important. In a reaction to this statement, Boone and Van den Bosch (1996) studied the emerging field of European Management and tried to discern key characteristics of a European style of management.

In order to detect particular characteristics of European Management, Boone and Van den Bosch (1996) briefly review the literature on this topic and identify at least two recurring discussions labelled as the "integration opportunity" and the "constraining diversity" issue. The integration opportunity issue stresses the managerial and organizational implications of the changing business environment due to European integration. A short-term, discipline-oriented perspective makes various business topics perceptible. In this connection a prominent view about the single European market is that it will lead to greater opportunities for realizing economies of scale, increased possibilities to transfer personnel and intermediary products over national borders, and new opportunities for strategic partnerships that straddle the national borders. The constraining diversity issue in the literature, however, emphasizes the fact that the main characteristic of this region, its diversity, still prevails. Although the European integration process of the last decade has facilitated the need to work across national borders, firms are still confronted with various important and structural forms of diversity in the European context. Differences in preferences, habits, language, and cultures are inherited and, as stated by Trompenaars (1993: 8), "Nowhere do cultures differ so much as inside Europe."

In an attempt to structure the diversity concept, Boone and Van den Bosch (1996) propose to distinguish three types of diversity: diversity in the negotiated environment, administrative

Types of Diversity	Examples
Diversity in Negotiated Environment	Tax rules Subsidization practices Financial report requirements Quality and product standards
Administrative Diversity	Internal accounting rules Information systems Manufacturing systems
Inherited Diversity	Customer Preferences Employee characteristics Business Systems

Table 6.3: Three Types of Diversity.

diversity, and inherited diversity (see Table 6.3). The diversity in the negotiated environment relates to differences which are still prevalent because the European integration process is still ongoing (e.g., differences in standards, testing and certification procedures). Although gradually decreasing because of a harmonization policy of the European Commission, major obstacles for eliminating this type of diversity are based on differences in legislation, regulations, and governmental policies between the member states of the European Union. The label administrative diversity has been chosen for the type of diversity which can be reduced at least in principle by an active or, even better, pro-active strategic role played by the company itself or by a combination of companies. Examples of administrative diversity are diversity of internal accounting rules, diversity of information systems, and inconsistencies in the definition of data-elements and information structures. The inherited diversity is the most resistant to change and is rooted in the distinctive historical differences between member states, regions, and ethnic groups of the European Union. Removing the formal barriers to trade will not be sufficient to overcome such barriers as consumer tastes, preferences, and habits. Moreover, most of the institutions that structure broad configurations of firm-market relations are cultural and national rather than sectoral as described by Whitley (1992).

Based on this conceptualization of diversity, it is logical to criticize the idea that the ongoing internationalization of firms and markets in Europe would establish a kind of distinctive pan-European business system in which there is no place for diversity. In this connection, Whitley (1994: 118-119) observes: "[The] international standardization of forms of economic organization and transfer of managerial practices vary greatly between economies with different degrees of institutional integration and state coordination, according to the relative strengths of each economy and centrality of particular sectors to them, and between business system characteristics with different degrees of interdependence with dominant institutions. Thus, the internationalization of firms and markets does not lead necessarily to the establishment of a single most efficient way of organizing economic activities, but rather has different consequences for different economies and different kinds of managerial practices

depending on the nature, strength and cohesion of social institutions." Boone and Van den Bosch (1996) agree with Whitley's analysis and stress that managing diversity in Europe will not be a temporary issue. On the contrary, it seems to be a long-lasting challenge.

Referring to the observation by Boone and Van den Bosch (1996) of an existing tension between the integration opportunities and the constraining diversity, managers active in the European context are confronted with a challenging problem because this tension cannot be ignored and needs to be managed. In managing this tension, a combination of both an externally and internally oriented managerial perspective seems to be essential (see Figure 6.4). On the one hand, the reduction of the negotiated and administrative diversity requires a reaction of firms regarding their European operations, a reaction which is referred to as an external-oriented managerial perspective by Boone and Van den Bosch (1996). These managerial responses are induced by the numerous changes in the European business environment and are often aimed at the exploitation of potential scale economies such as the

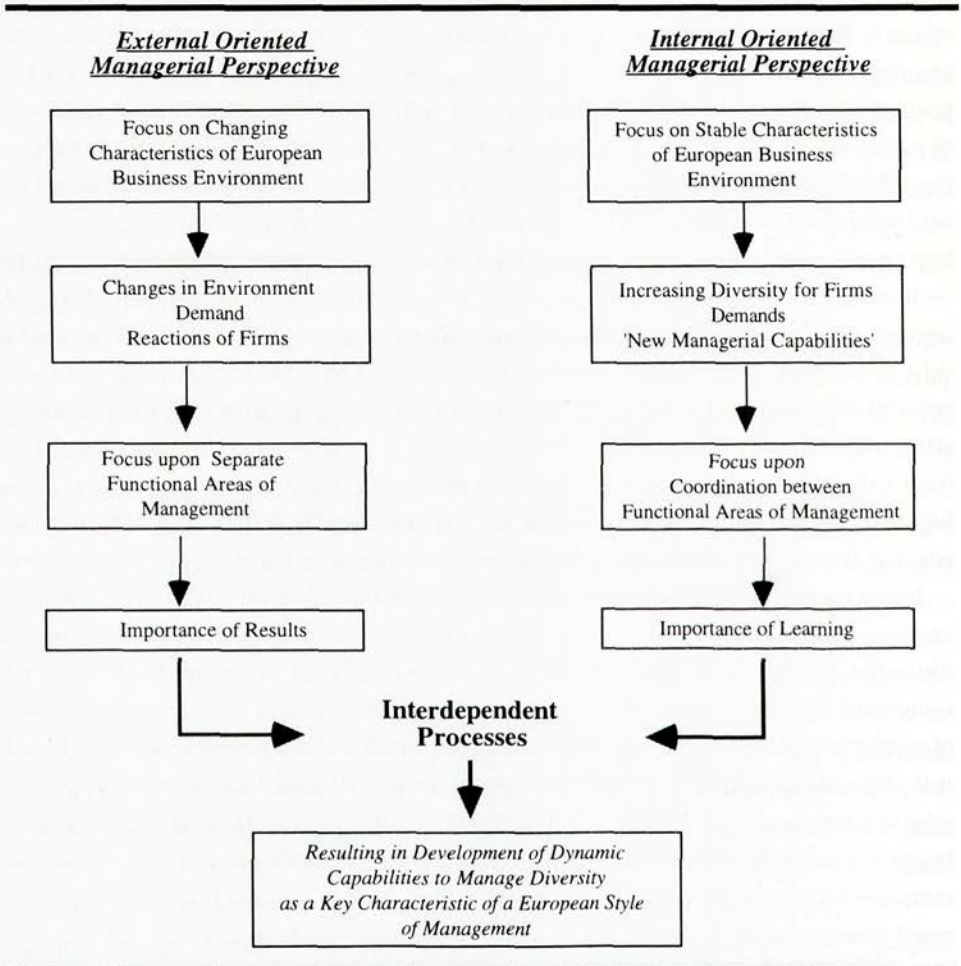


Figure 6.4: Conceptual Model for Reconciling the Tension.

integration of various production plants, the establishment of European-wide logistics system, and the harmonization of the firm's European product portfolio. On the other hand, firms need to develop the managerial capabilities to make a European firm really work. Successful management within a European context depends upon the development of context-related managerial capabilities based on an internal-oriented managerial perspective. Managerial capabilities are needed to cope with the remaining diversity as a stable characteristic of the European context.

The knowledge created due to operating in Europe can be considered as residing in organizational routines, meaning regular and predictable behaviour patterns of firms (Nelson and Winter, 1982). Boone and Van den Bosch (1996) suggest as a proposition that these organizational routines and the managerial capabilities to call upon the organization to perform and coordinate them, represent a key characteristic of a "European style of management." A key characteristic which has major implications for the management of the intracorporate knowledge sharing process. The changing European business environment has significantly increased the required level of intracorporate knowledge sharing for firms active in this region. Intensified competition on a European scale has enforced firms to internationalize, leave their one-dimensional strategies, and exploit the existing synergies between their subsidiaries. Firms need to boost their actual level of intracorporate knowledge sharing, but this endeavour is significantly obstructed, hindered, and complicated by the diversity in the negotiated environment, the administrative diversity, and the inherited diversity.

Following the model as depicted in Figure 6.4, firms in Europe have to react to this changing business environment in Europe. Harmonization of standards, vanishing trade barriers, and the increased ease to transfer personnel over national boundaries provide opportunities to boost the actual level of intracorporate knowledge sharing and hence should be exploited. Intracorporate knowledge sharing on a pan-European scale, however, is complicated by the remaining diversity and firms must develop the skills and capabilities to manage this additional complexity. If a firm reduces its administrative diversity and learns to deal with the differences in terms of customer preferences, employee habits, and business systems, however, a valuable competence is developed which can become an important corporate advantage vis-à-vis multinationals with less experience in this respect.

6.4 SUMMARY AND CONCLUSIONS

In this chapter the design of the empirical work has been presented, linking the empirical part of the research project to its theoretical foundation (see Figure 6.1). The key constructs of the theoretical groundwork have been operationalized, the number and selection of the case study objects explained, and the applied methods for data collection enlisted. Moreover, the managerial implications of the European context on the intracorporate knowledge sharing process have been enumerated and discussed.

7

Unilever

In Search of a "Qualified" Set of Management Tools for Managing Intracorporate Knowledge Sharing in a Decentralized Way

If Unilever only knew what Unilever knows.

- Sir Michael Perry, co-chairman of Unilever, 1992[1].

7.1 INTRODUCTION

"If Unilever only knew what Unilever knows," Sir Michael Perry sighed during an annual meeting of international Unilever managers in 1992. In an attempt to remind and convince his managers of the potential value inherent in the exploitation of the company's reservoir of knowledge, the co-chairman of the Unilever Corporation referred to all the unleveraged knowledge residing unstructured throughout the Unilever organization. "Every company of Unilever," Mr. Perry continued, "already has stored in one form or another, a vast amount of useful knowledge that could benefit others within the concern. Not only the information with respect to product development, process innovation, market research, and the effectiveness of national promotions but also visual material such as whole libraries of recent and current TV commercials - both of Unilever and its competitors."

"We have made progress in implementing new team processes and systems but we really have to make it work now," Sir Michael Perry proceeded at the 1994 IT Conference of Unilever. "If we combine these strengths with the ability to share information rapidly across our global network we can create a strong global competitiveness which can also bring

---

[1] Eight of the thirty-five interviewees pointed out spontaneously to this statement of Mr. Perry. Although most of the interviewees could not exactly tell the interviewer when and where the statement was pronounced, this sentence has become well known throughout the organization and is felt as a strong verbalization of the importance of intracorporate knowledge sharing for the Unilever organization.

substantial benefit to local markets." Once again, Unilever's co-chairman stressed the significant importance of intracorporate knowledge sharing for the well-being of the corporation at large and instilled a growing recognition throughout the organization for the enormous "knowledge base" which remained unexploited too often. "Every week I am confronted with issues which, I assume, have been studied and solved before somewhere throughout the Unilever corporation," a national account manager of one of the operating companies in the Netherlands explained, confirming the argument of Mr. Perry. "Too often we start exploring new problem areas on our own as if we are the only one. [...] More coordination and a growing eagerness to share knowledge could save the individual companies a lot of their management time and lower the expenses with respect to research and development activities."

The increased emphasis on intracorporate knowledge sharing within the Unilever organization was the outcome of a strongly changing context in both competitive and corporate terms. Owing to the globalization of many of Unilever's businesses, growing price pressures, declining trade conditions in Europe and North America, and the need to rapidly build market positions in emerging markets, the necessity to achieve scale economies was gradually swelling. Instead of a focus on local differentiation strategies based on a well-grounded market feeling, large advertisement budgets, and advanced marketing techniques, Unilever was forced to integrate and coordinate its business activities more strongly to reduce costs and keep margins in the European region stable. Innovation resources had to be combined and exploited more intensively to boost output and reduce unnecessary duplication in this respect. Moreover, Unilever realized that managers building their businesses in the emerging markets of Asia, Africa, and South America could, with the right systems and structures in place, learn an awful lot from the experiences, know-how, and skills of their colleagues in the more developed regions.

So, Unilever's management cadre started to envision most of the benefits that could arise from sharing internally existing knowledge items. Corporate management, however, was confronted with a tremendous management challenge and still had many problems to overcome. Unilever has always been a rather decentralized company and has never been looking in an extensive way for the benefits of integration. With more than 1000 brands in the branded consumer goods business (foods, detergents, and personal products), approximately 308.000 employees working in over 90 countries in which Unilever is represented by one or more operating companies, and two European parent companies (The Netherlands and the U.K.) operating as nearly as is practicable as a single entity, Unilever makes, so to speak, a living out of diversity. Unilever consists, as a former co-chairman of Unilever once stated, "of hundreds of individual operation companies - each with their own identity" (Maljers, 1990: 64).

Corporate management, however, endorsed the task to increase intracorporate knowledge sharing and started to think in terms of solutions in the beginning of the 1990s. Not only the innovation diffusion from Unilever's R&D centers (see Exhibit 7.1), but also the transfer of knowledge within and between various functions, product groups, and product categories had

to be improved with the help and persistence of all the Unilever employees. Concerned, however, that any drastic change in the management processes might threaten the strong internalized values and powerful information relationships that had historically linked organizational units, Unilever's management realized that it had to do more than changing just the "blueprint" of the organizational structure. The key task was to reshape the core decision-making systems by changing the organizational context in which decisions were made, and in doing so, the management processes of the corporation. Hence, Unilever's managers would need tools for managing such a change that had to be more subtle but also more effective than the simple creation of a formal organizational structure or the institutionalization of a more dominant and top-down oriented corporate management culture.

Unilever's growing obligations, inevitable problems, and chosen solutions with respect to managing intracorporate knowledge sharing are reviewed in this chapter. Particularly its management tools stimulating and facilitating the intracorporate knowledge sharing process were of interest for this research project and are described in detail in this case description. By identifying, developing, and institutionalizing these management tools, Unilever's top

Unilever Research & Development

Unilever commits several hundred of millions US dollars each year to research and development. Amounting to about 2% of global sales, this expenditure is divided among the development departments of its larger operating companies and its five research laboratories in Europe, the USA and India

	Vlaardingen (NL)	*Colworth (UK)*	*Port Sunlight (UK)*	*Edgewater (USA)*	*Andheri (India)*
Established	1954	1947	1912	1952	1958
Employees	1100	1100	1300	380	260
Main Research Areas	Food Products Detergents Manufact. Techn.	Food Products Personal Products Manufact. Techn. Agribusiness Safety	Detergents Personal Products Chemicals Manufact. Techn.	Detergents Personal Products Safety	Food Products Chemicals Safety Detergents Engineering

Though the corporate laboratories each employ research teams covering many scientific disciplines, over the years areas of specialism have been developed at each location. This expertise is shared to maximize the benefits of corporate research.

Effective communication remains essential to the operation of research. Day-to-day communication between laboratories uses state-of-the-art information technology. Unilever's own data network links the laboratories, Unilever Engineering and corporate headquarters allowing information to flow freely across the Division. Other channels of communication are available to promote the spread of scientific ideas. Meetings and seminars are regular features of life at each laboratory. Scientists, academics and colleagues from Unilever businesses often meet to exchange ideas.

The rapid spread of scientific and technical ideas and information is critical to Unilever. The Technical Information Service located in London and Rotterdam assists in gathering and collating all relevant information and making it available to technical managers throughout the Unilever organization.

Adapted from several internal documents on Unilever's R&D activities.

Exhibit 7.1: Unilever Research and Development.

management tried to increase the actual level of intracorporate knowledge sharing between its operating companies. In section 7.2, 7.3, and 7.4 the case description elaborates on, respectively, Unilever's changing knowledge environment, its reorientation with respect to corporate strategy in the period 1983 to 1995, and its administrative heritage. These three sections point out why intracorporate knowledge sharing has become a strategic issue for Unilever, what factors determine the required level of intracorporate knowledge sharing for Unilever, and how the particular background of this corporation at the same time complicates and facilitates an increase of knowledge sharing between its companies.

Section 7.5 scrutinizes the management tools within the Unilever organization which have influenced the transfer and exchange of information since their implementation. The high degree of differentiation with which these tools have been worked out and implemented throughout product groups, categories, and functional areas of the Unilever organization, made us decide to use broad descriptions of the management tools in the body of the main text and to provide the reader with a more detailed analysis of some mechanisms in the exhibits. We analyzed the development and application of advanced information and telecommunications technology used to connect Unilever managers around the world and the firm's definition of common data-elements and information structures. Furthermore, we shed our light on the growing process orientation within Unilever and the embodiment of the Innovation Funnel concept as a way to manage dispersed innovation projects. Finally, we investigated Unilever's creation of an international network of interdependent operating companies by delegating and concentrating knowledge exploration responsibilities.

In the concluding section, the empirical findings of the Unilever case are reviewed on their fit and illustrative power with respect to the theoretically deduced propositions on the prerequisite management systems for managing intracorporate knowledge sharing. Unilever's implemented management tools are compared with the management tools giving form and content, as argued in chapter four and five, to a knowledge sharing awareness, persuasion, complexity reduction, and media system and some tentative conclusions are formulated on the barriers still obstructing and complicating the initiation and effectuation of intracorporate knowledge sharing within the Unilever corporation.

7.2 UNILEVER'S CHANGING KNOWLEDGE ENVIRONMENT

Unilever, an Anglo-Dutch corporation belonging to the 20 largest companies in the world, aims to be the foremost company in the world in meeting daily needs of consumers across the world in branded consumer foods (see Exhibit 7.2), personal products (see Exhibit 7.3) and detergents (see Exhibit 7.4). The other major activity is in specialty chemicals, mostly technologically related to the consumer products. Unilever is a multinational company which was established in 1930 when the Margarine Unie and Lever Brothers decided to merge their interests. Today, the Unilever group comprises two separate entities, known as Unilever N.V.

and Unilever P.L.C., with headoffices located in Rotterdam and London respectively. These parent companies share the same set of directors and are linked by a series of agreements that make all shareholders, whether in N.V. or PLC, participate in the prosperity of the entire company. Both entities have agreed to cooperate in every possible manner to maintain a common policy in all fields of operation, to exchange all relevant information with regard to their businesses and to ensure that all group companies act accordingly.

The Unilever Group employs approximately 308.000 people across the world, including 22.000 managers, with some 500 operating companies in more than 90 countries producing and marketing over 1,000 brands worldwide. In 1995 Unilever's total turnover and operating profit were US$ 49.7 billion and US$ 4.0 billion respectively. Although the European and North-American operations still account for 52 and 19 per cent of annual turnover and 50 and 17 per cent of operating profits respectively, the contribution from Asia, South-America, and Africa (rest of the world) has shown a strong growth during the past few years. The product group foods is by far the largest operation of Unilever with 52 per cent of turnover (43% of the operating profit) related to 22 (18%), 14 (21%) and 9 (15%) per cent of turnover (operating profit) contributed by respectively the product group detergents, personal product and special chemicals (see Table 7.1). Expenditures on research & development and advertising & promotions were US$ 923 million (1.8% of turnover) and US$ 5.4 billion (10.8% of turnover) respectively. Generally, Unilever's performance in recent years is, compared with the main competitors, below general expectations. For full year 1996, operating margins were expected to rise slightly.

Historically, competition in the branded packaged goods industry was a game of positioning and distinctive competitive advantage was often the outcome of "intelligently" constructed

Unilever FOODS

Half of Unilever's business is in packaged food and drinks, an area which has developed and expanded greatly from its original base in edible fats, established in the Netherlands nearly 125 years ago by Simon van den Bergh and Anton Jurgens.

Direction

Based on its historical foundation in Europe, Unilever is now progressively growing and strengthening its foods interests in North America and the rest of the world. Although not every part of Unilever's portfolio is transferable to other continents, some categories like ice cream, tea, and tomato-based products have a broader and sometimes global appeal. Unilever wants to use its expertise in these categories as drivers of growth in the global market.

Product Categories

Includes margarines (e.g. Flora, Becel, Rama, Blue Band), olive oils and seed oils (e.g. Bertolli, La Masia), dressings and other sauces (Wishbone, Calve), cheeses (e.g. Boursin, Milkana), ice-cream (e.g. Ola, Wall's), beverages (e.g. Lipton), savoury snacks (e.g. Peperami, Bi-Fi), frozen products (e.g. Iglo, Birds Eye), pasta and meal sauces (e.g. Ragy, Chicken Tonight), meat & delicatessen products (e.g.Lipton side dishes, Cup-a-Soup, Unox), food service, and bakery.

Global Competitors

Nestle, Philip Morris, Mars, BSN, CPC International, and Sara Lee.

Exhibit 7.2: Unilever Foods.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total Sales (x US$ mill.)	25,368	31,661	31,900	34,378	40,466	40,767	43,719	41,878	45,419	49,732
Europe (% Total Sales)	61	61	58	56	59	58	57	52	51	52
North America(% Total Sales)	18	18	19	22	20	21	20	21	20	19
Rest of World (% Total Sales)	21	21	23	22	21	21	23	27	29	29
Op. Profit (x US$m)	1,652	2,447	2,614	2,980	3,549	3,522	3,767	2,922	3,866	3,987
Europe (% Total OP)	56	54	55	49	58	60	57	52	49	50
North America (% Total OP)	10	18	19	24	18	17	18	13	20	17
Rest of World (% Total OP)	34	28	26	27	24	23	25	35	31	33
Percentage of Sales Contribution by Product Group (*Operating Profit Contribution*)										
Foods	50 (*55*)	51 (*51*)	51 (*54*)	51 (*51*)	51 (*51*)	51 (*53*)	51 (*51*)	51 (*52*)	51 (*48*)	52 (*43*)
Detergents	22 (*17*)	22 (*20*)	22 (*17*)	22 (*17*)	22 (*18*)	23 (*19*)	24 (*20*)	23 (*15*)	22 (*18*)	22 (*28*)
Personal Products	6 (*5*)	9 (*10*)	10 (*11*)	11 (*13*)	12 (*14*)	12 (*12*)	13 (*15*)	15 (*18*)	15 (*19*)	14 (*21*)
Speciality Chemicals	7 (*12*)	8 (*13*)	9 (*15*)	9 (*13*)	8 (*12*)	8 (*11*)	8 (*11*)	8 (*12*)	9 (*12*)	9 (*15*)
Other Operations	15 (*11*)	10 (*6*)	8 (*3*)	7 (*6*)	7 (*5*)	6 (*5*)	4 (*3*)	3 (*3*)	3 (*3*)	3 (*3*)
R&D Expenditure (x million US$)	451	617	601	615	728	750	816	779	831	923
Number of Employees (x 1,000)	302	301	295	296	301	298	287	294	304	308
Europe	122	117	110	108	110	109	105	102	101	101
North America	22	27	28	32	35	34	32	32	32	29
Rest of World	158	157	157	156	156	155	150	160	171	178

Table 7.1: Unilever: Ten-Year Financial Summary (Adapted from Unilever Charts 1984 - 1994).

marketing programs based on distinctive market knowledge, advanced marketing techniques, and significant advertising budgets. Firms focused and competed on their abilities to adapt their product offerings to local market circumstances and in this respect one could consider Unilever's marketing skills and resources as notable. By differentiating its products, Unilever earned above-average returns, attained market leadership in many segments of this industry, and established a high-quality image for most of its brands. Although other competitive dimensions like costs and innovation were not ignored, differentiation was indeed the primary strategic target of most operating companies within Unilever. Companies were allowed to retain their own operational and trading identities to meet different consumer requirements in the markets they served.

Since a number of years, the competitive battle in this line of business has been changing dramatically. The European integration process, increased price pressures, a growing trade concentration, and quickly evaporating consumer demands have forced many firms to rethink and adapt their competitive strategies. Competitive success could not be built any longer on one-dimensional strategies like the ability to adapt to local circumstances or upgrading skills and resources in marketing. More and more, firms were forced to compete on such grounds as operational efficiency, speed of action, operational flexibility, and product innovation. "Particularly our ability to innovate more effectively and efficiently than our global competitors pervades many of our competitive strategies nowadays," a general manager in the Personal Products business stressed during the interview. "While competition with the DOBs - Distributor-Own-Brands - and small local competitors focuses on costs and service customization, the global players in this industry have started to outperform each other on creativity and innovativeness in all aspects of their business." As a consequence, the ability to

Unilever PERSONAL PRODUCTS

The product group Personal Products added 14 percent to Unilever's total turnover and 21 percent to its operating profit in 1995. From its origin in the early 18th century when famous brand names like Atkinsons and Pears were first introduced in the UK, Unilever's Personal Products business has developed into a diverse and internationally successful business leader.

Direction

Unilever PP has an overriding objective for the year 2000: to be number one in the world. Today the global market is large, diverse and fast-growing, and Unilever PP's products hold strong positions. Unilever PP's strategy in the competitive battle with its main rivals is a constant barrage of unique, significant innovations that consumers want and competitors cannot match.

Product Categories

Unilever PP makes a distinction between mass-market toiletries and prestige sectors. Mass-market toiletries include toothpastes (e.g. Signal, Pepsodent, Mentadent and Close-Up), hair products (e.g. Timotei, Clinic, Sunsilk, Organics), deodorants (e.g. Rexona, Axe), bodyspray (e.g. Impulse), soap (e.g. Pears, Dove), skin care and perfumes (e.g. Vaseline, Pond's, Faberge Brut).
The prestige sectors comprise such well-known brands as Elizabeth Arden and Calvin Klein.

Global Competitors

Procter & Gamble, Colgate Palmolive, Johnson & Johnson, L'Oreal, Beiersdorf, Kao, and Shiseido.

Exhibit 7.3: Unilever Personal Products.

Unilever DETERGENTS

The product group Detergents added 22 percent to Unilever's total turnover and 28 percent to its operating profit in 1995. More than 100 years ago Willaim Hesketh Lever opened his first factory in the UK and launched the famous Sunlight soap brand. From its origins in Europe and North America, Unilever's detergent business has grown internationally into extensive operations throughout the fast-growing regions of the world, like Latin America and South East Asia.

Direction

Unilever Detergents still shares the vision of its founder, William Hesketh Lever, who wanted to make cleanliness commonplace. Today, Unilever's detergents business wants to create the world's leading business devoted to cleaning, care and hygiene of fabrics, people and the places where they live or work. By harnessing its combined world knowledge, Unilever is able to create brands with universal appeal.

Product Categories

Unilever's detergents business is grouped into four categories: fabrics cleaning and conditioning (e.g. Omo, Skip, Wisk), personal wash (e.g. Lux, Dove, Caress), home care (e.g. Jif, Sun), and Lever Industrial International. Of these four categories, fabrics cleaning and conditioning is the largest.

Global Competitors

Procter & Gamble, Johnson & Johnson, Colgate-Palmolive, Arm & Hammer, and Henkel.

Exhibit 7.4: Unilever Detergents.

sustain a constant stream of process and product innovations, the primary concern of companies in high-tech industries in the past, has become a critical success factor in the branded packaged goods industry as well.

The new competitive demands induced Unilever to synthesize its businesses more strongly on a regional and global level. Although many managers strongly resisted the idea of increased integration, Unilever was forced to complement local adaptation competences with a strategy that was aimed at combining internal strengths and exploiting scale economies. "If we want to remain a 'big' player in our industry," a senior manager of Unilever's foods business stated in his meeting with the researcher, "we should develop the capability to manage both scale and diversity simultaneously. [...] The diversity with which this corporation is confronted is not as large as is often argued by managers both in the operating companies and the center. If you use a top-down approach you can discern a large variety of representations for serving the same market need. This variety, however, is built from a small number of standard elements. [...] Too often we assume that differences in the demands of customers inevitably obstruct the realization of operational and strategic synergy. Although our soup, for example, tastes different in Belgium than in the Netherlands, both variants are made of the same tomatoes and are packed in the same can. In most cases we market a large variety of the same. Hence, we need to manage the diversity and exploit the possible synergies from the point where consumer needs are the same. The coherence at the foundation provides enough opportunities to create significant scale economies without harming the requirements for local adaptation."

"Our aim is to have something unique, that brings to the global or regional consumer something she cannot get any place else," a senior manager of the Personal Products Coordination further explained the need for more integration. "We look constantly for top-class scientific innovations or for novel packaging that delivers fun, satisfaction or sensory pleasure to the purchaser. [...] Inevitably, many will be copied once they are on the market and this process is accelerating quickly. The only appropriate response to that is having a constant flow of new ideas coming in at the top which are leveraged as quickly as possible in our markets. [...] In the past it was possible to launch a product in Sweden and measure its performance for three years and then, if successful, move it to other countries in Europe. Today, returns on innovations must be collected quickly or competitors will imitate you and steal your gain. We need to acknowledge that the ability to rapidly transfer and hence exploit innovations over our network of operating companies is becoming a critical success factor. A disciplined way of developing and leveraging our innovations, however, implies more integration and intensified international coordination."

Although Unilever remains convinced that its tradition of keeping close to its markets is key in transforming innovation into competitive advantage, the importance of Unilever's product and process-oriented expertise is strongly growing and changing Unilever's position on the knowledge environment grid (see Figure 7.1). To sustain a dominant position in the branded packaged good business, Unilever's differentiation strategy needs to be complemented by a constant stream of product and process-innovations. Although market knowledge will remain critical, the importance of exploration and exploitation of firm-specific expertise has increased significantly. Expertise is necessary for the attainment of best-practice levels in the operating companies, for the establishment of lean and flexible sourcing, production, and distribution systems, and for the development of distinctive product innovations.

By moving to the right lower corner on the knowledge environment grid, the required level of intracorporate knowledge sharing tends to increase. The possibilities for intracorporate knowledge sharing are extended and consequently the inherent opportunities for corporate

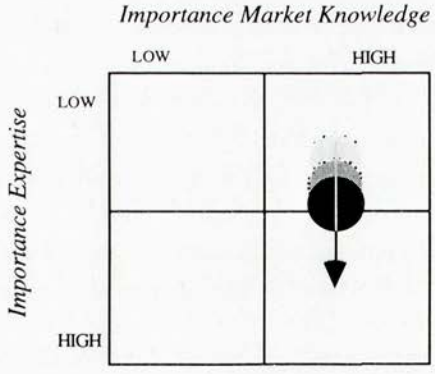


Figure 7.1: Unilever's Knowledge Environment Grid.

value creation enlarged. Whether these opportunities are exploited, however, is strongly dependent on the firm's corporate strategy and its perspective on the value-added role of the corporate whole.

7.3 UNILEVER'S CORPORATE STRATEGY IN THE PAST DECADE

A long time before the changing knowledge environment forced Unilever to increase the leverage of its knowledge base, Unilever's top management initiated a strategic reorientation program which had major implications for Unilever's ability to exploit its knowledge exploration activities today and in the future. In the beginning of the 1980s, a time in which resource-based perspectives to corporate strategy were rarely used, a transformation process was started which had to refocus and realign Unilever's business activities or, as Mr. Maljers[2], co-chairman of Unilever from 1984 to 1994, said, "to refocus Unilever on those areas it was really good at." After operating as a financial holding for many years, the so-called Core Strategy was aimed at reducing the scope of Unilever's business activities and bringing Unilever back to those business areas which seemed attractive from a market perspective and in which the firm had considerable expertise in technology, marketing, sales, customer service, etc. By promoting the core business concept, synergies would grow and the generation of corporate value would become more feasible through the exchange of product, marketing, and technological know-how and skills. In the period from 1986 until 1995, Unilever actualized 487 transactions in which companies were acquired or disposed (see Figure 7.2).

Historically, the clearly understood role of the board was to approve plans and budgets, control capital expenditure, and appoint and develop executives. Although the main part of the business activities were concentrated in the fast moving consumer goods business, a clear definition of the scope of business activities was lacking until the mid-1980s. A decade earlier Unilever had formulated a strategy clearly outlining its geographical ambitions. Unilever wanted to strengthen its position and to gain significant market share in North America. The strategy was much less explicit in those years, however, in stating product portfolio objectives. Analyzing the acquisitions of the late seventies and early eighties, investments in a large number of activities were peripheral to the main businesses and large remnants existed of the vertical integration policies of the past such as carton making, printing and packaging, oil milling, advertising agencies, a market research group and a fast growing transport division. These non-core activities of Unilever accounted for over 20% of total turnover in 1983.

In the early eighties, it became obvious that Unilever's traditional strategy was inadequate and that it was necessary to add a product dimension to the geographical one (Maljers, Baden-Fuller, and Van den Bosch, 1996: 556-557). The fundamental reorientation of Unilever's

---

2 The quoted statements from Mr. Maljers in this section are derived from a presentation of Mr. Maljers at the Strategic Management Conference in Paris in 1994 on "Maintaining Strategic Momentum" and from a personal interview.

strategy that followed, however, was not solely the product of a philosophy, Mr. Maljers said while looking back on the previous decade. "There was a practical catalyst, namely a proposal in the mid-1983 that more than £40 million should be invested in one of Unilever's transport subsidiaries, Norfolk Line, which ran "roll on/roll off" ships between the UK and the Netherlands. There was a sudden realization that nobody on the Special Committee, or indeed anywhere else in Unilever, had any real experience or expertise in this line of business. This in turn led to a re-assessment of the company's capabilities and skills in all the areas in which we were involved." The product groups on which the Unilever corporation had to concentrate were selected but, at this moment, just in very broad terms: foods, personal products, detergents, and specialty chemicals.

Adding the product dimension proved to be a considerable improvement but it was essentially a first step that marked the beginning of a process of defining product priorities. Around 1988, a new impulse was given to Unilever's strategic reorientation process under the code name "Starfish." There was consensus among Unilever's corporate management that the four chosen areas offered considerable opportunities for growth. Consequently, the existing strategy was reconfirmed, but a few new dimensions with respect to Unilever's product portfolio were added. It was decided, for example, to continue the formulation of product priorities. Unilever started to realize that the four core areas were each composed of a number of sub-groups, called product categories, and that some of these were more interesting for Unilever's future than others. Moreover, the geographical dimension received heightened attention once again. New markets were emerging in regions as Latin America, East Asia and the Mediterranean. Although less attractive on the short term, these markets were expected to

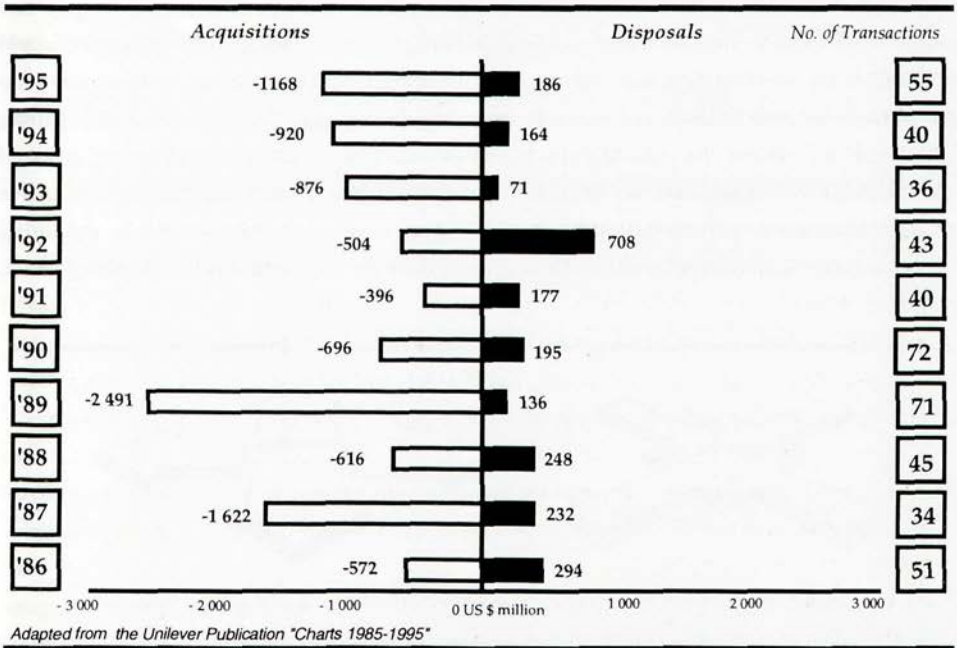
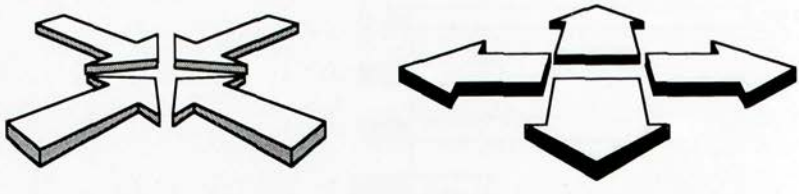


Figure 7.2: Acquisitions and Disposals of Unilever in the period 1986-1995.

grow significantly over time and hence market positions had to be built as fast as possible to be ahead of competition and gain first-mover advantage.

The impelling force behind the third phase in the strategic reorientation process since the early 1980s was, Mr. Maljers stressed, "not so much an inner urge but more a necessity due to the fast changing business environment." This third phase, initiated in the beginning of 1992 was based on a widely-felt need throughout Unilever to further refine both product priorities and geographical opportunities. "A growing need to exploit our expertise and skills forced us again to further narrow the product focus in terms of the number of products covered," Mr. Maljers explained. "Within foods, for example, we always had a subgroup beverages. This was virtually only tea in practice, in which we are the world's leading manufacturer. However, there were periodic studies about the possibilities of the coffee market, and indeed some coffee was sold in a few countries. However, the competitive structure of the coffee industry has been such that the chances for a major worldwide profitable entry appeared to be remote. The third phase was the point where we decided to give up any major global coffee ambitions and to concentrate on tea. This in turn led to the decision to put more emphasis on tea, for instance, by extending the American habit of drinking iced tea to Europe where a successful business is being build under the name Liptonice."

Apart from a re-definition of the product priorities based upon a recognition of the possible synergies which would emerge due to a more limited scope of Unilever's business activities, various developments in the international business environment have also forced Unilever to review its capital commitments since the beginning of the 1990s. On the one hand, the formation of new geopolitical groupings such as the European Union, NAFTA, the Andean Pact, and Asean often necessitated a complete re-configuration of regional supply and production facilities. Without major restructuring programs local competitive strategies would suffer from the confrontation with strongly integrated regional or global competitors affecting the cost-competitive position of Unilever's product offerings. On the other hand, the opening up of new markets in the post-Marxist period resulted in an almost bewildering array of opportunities for investments. By building market positions in emerging markets, attractive points of departure would be created in the "markets of tomorrow" while enlarging opportunities to exploit Unilever's skills and know-how in such areas as brand management, distribution, and sales.



a) Unilever's Product Portfolio Strategy

b) Unilever's Internationalization Strategy

Figure 7.3: Illustration of Unilever's Strategic Reorientation Process.

As a consequence, Unilever's product focus increasingly narrowed while the geographic spread of its products extended (see Figure 7.3), with the direct result that in each product area strategies became more clear and, at the same time, the need for knowledge sharing became more apparent. Unilever wanted to give priorities to those categories in which opportunities existed to exploit both its global reach and its special regional and local expertise. As Goold *et al* (1994: 157) state, "by creating a network of operating companies in fast moving consumer goods businesses in different countries, a parent can generate value through the exchange of product, marketing, and technological information, ideas, and skills." Global competitiveness would be achieved, Unilever's top managers reasoned, if Unilever's employees would develop the capability to share information and know-how rapidly between companies across a global network. An increase of the actual level of intracorporate knowledge sharing, however, would be restricted by the company's administrative heritage and would require the implementation of management systems stimulating and facilitating the transfer of knowledge.

7.4 UNILEVER'S ADMINISTRATIVE HERITAGE

The Unilever organization incorporates many examples of good practice which should be identified, transferred, and adopted systematically. The description of the changing knowledge environment and the strategic reorientation process makes clear that the required level of intracorporate knowledge sharing is strongly growing and is becoming a critical element in Unilever's strive for competitive and corporate success. The need to ensure rapid and effective transfer of its core resource, knowledge, was acknowledged by Unilever's top management, but, as Mr. Maljers stated on the Strategic Management Conference in Paris in 1994, "formulating strategy is easy, everybody with common sense can do that... It is far more difficult to implement a new strategy, certainly in a company the size of Unilever." In learning the particulars of Unilever's endeavour to increase the actual level of intracorporate knowledge sharing, it is therefore necessary to study the firm's administrative heritage and the way this firm is organized today.

Unilever has always been an internationally oriented corporation. Especially Lever Brothers was early in internationalizing its business activities. Already in the mid-1880s William Lever assigned personal representatives to Africa, India, the Far East, and South America to build market share in these foreign markets. Although tight control was initially strongly appreciated by William Lever, the necessity of giving local autonomy to overseas managers has been acknowledged from early in Unilever's history. The first chairman of the in 1926 established Overseas Committee already felt that the role of the Overseas Committee was to provide guidance instead of instruction, to approve the annual estimates of sales and profits, and to monitor the regular flow of financial data and correspondence from the field. A strong corporate norm resulted: the task in managing overseas companies was to develop and manage people rather than to analyze and resolve problems.

The company emerged in the postwar era with a strong philosophy of management built around independent operating companies whose managers were given maximum responsibility and freedom. The growing number and sophistication of local competitors, rising trade barriers, and substantial country-to-country differences in terms of consumer preferences, distribution channels, and local regulations reinforced the trend towards decentralization of responsibility. Unilever's large national companies became fully integrated and self-sufficient operations. The clearly understood role of the board was to approve plans and budgets, to control capital expenditure, and to appoint and develop executives. At the operating level, local managers had great latitude to develop and implement strategies that reflected the opportunities and constraints of their particular environments. Unilever operated through local or regional subsidiaries which had a fair degree of independence and autonomy. Responsibility was given to the individual companies for their own operations.

This considerable operational leeway has been complemented by a corporate norm to keep the formal communication lines as short as possible. Usually, no more than four layers exist between Unilever's chairmen and their brand managers. As Goold *et al* (1994: 157) argue: "Unilever aims to achieve networking and coordination without building a bureaucracy or making central management top heavy." Process and product coordinators at the corporate center act as an advisory facility to companies throughout the world and bring front-line managers with shared business problems together. To execute these liaison and coordination responsibilities, these managers need to keep in close contact with a broad span of chief executives, marketing directors, and product managers obscuring excessive interference. They have to provide a vehicle for linkages between countries, guidance on worldwide product strategy, and a mechanism for best practice transfer (Goold *et al*, 1994: 158).

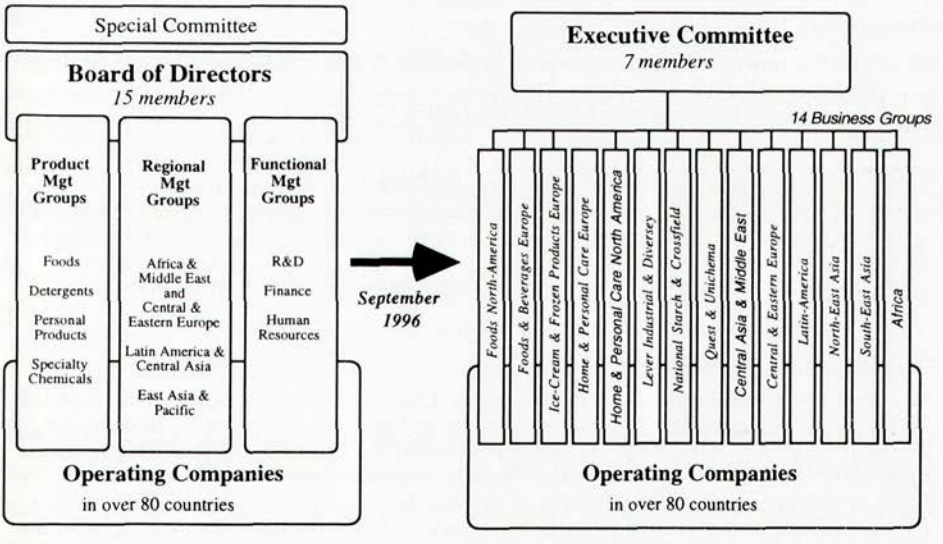
Until 1 September 1996, Unilever's top-structure consisted of a Board of Directors which was headed by a Special Committee (see Figure 7.4). The Special Committee embraced the chairmen of Unilever PLC and Unilever NV, complemented, in most periods, by the prospective successor of one of them. The Special Committee was responsible for formulating long-term strategies for Unilever as a whole, approving strategies for parts of Unilever, monitoring the performance, and formulating overall financial policy. Besides the members of the Special Committee, the Board of Directors comprised 6 product-group Directors, 3 regional Directors, and 3 functional Directors. Central control was deliberately kept over three business areas, being research, finance, and management development.

The original top structure, however, involved a decision-making process which was often too complicated and time consuming because of fuzziness surrounding management responsibilities and decision-making authorities. Too many people were often involved in major business decisions, responsibilities for strategic leadership and operational execution not clearly allocated, and many solutions tended to be sub-optimal due to the strive for consensus. "Still too often," one general manager of the Foods Executive stated, "we tend to act too slowly. If we want to gain market share and leverage our skills and know-how in such markets as China, Vietnam, and Brazil, we need to accelerate our decision-making processes. Without

this flexibility I am seriously concerned about our ability to act and invest quickly if opportunities unfold."

As a consequence, Unilever decided in the beginning of 1996 to restructure and simplify its top-structure in order to achieve clear roles and single point responsibility. The new organization would allow strong regional focus within a framework of agreed category strategies. Going into effect on 1 September 1996, the Special Committee has been removed as a separate institution to be integrated in a small Executive Committee. Instead of the 15 Directors in the "old" Board, a smaller and highly integrated team of 7 members has been implemented responsible for the overall strategy and corporate development of Unilever. Directly under this newly formed Executive Committee, 14 Business Groups were institutionalized with profit responsibility for their businesses. Located at the Center or at the Extended Centers, various functional experts, product category experts, and process leaders (liaison members) are still responsible for securing and exploiting the non-Business Group aligned synergies.

After 10 years of strategic reorientation and driven by the need to build market positions in the emerging regions, Unilever's new top-structure had to make responsibilities more clear and improve the speed and clarity of decision-making (NRC Handelsblad, 13 March 1996: 1). To keep operational decision-taking close to the market, Unilever must be able to communicate a shared and unequivocal vision regarding the corporate purpose and objectives. Instead of aiming for consensus, single point responsibilities should enable the business groups to act quickly and effectively. The Corporate Center is responsible for formulating the firm's strategic direction and hence provides a strategic framework within which front-line managers must learn to act and take their responsibilities for operational execution.



Adapted from Internal Documents

Figure 7.4: Re-design of Unilever's Top-structure.

Unilever's formal organization and hence formal communication lines have traditionally been complemented by a strong corporate culture. Surprisingly for such a large organization, an important feature of the Unilever culture is its informality. The company does not maintain heavily documented systems. Much depends on informal relationships across the organization. One member of the Personal Products Coordination described Unilever as a "tight-knit but free-flow management structure in which, despite its size, good and bad news travels swiftly and undisturbed to every corner of the Unilever universe." The informal relationships are formed very early on in people's careers. A considerable culture and a strong informal network

The Ice Cream Academy

Unilever is planning a rapid expansion of its ice cream business throughout the world over the period leading up to 2003. Outside Western Europe and North America, this will require the training of a large number of managers in order to ensure that the growing business is competitive. Meanwhile, in Europe and North America Unilever needs to maintain its competitiveness by speeding up innovation and ensuring a constistently high quality of its products. The Ice Cream Academy is targeted at both types of operation so that a consistent high quality reservoir of human resources is created throughout the business over the next few years.

Objective of the IC Academy

The Academy is a total concept and not just a series of courses held in a building. It is about constant learning, training the trainers, training assignments on location, and transferring best practice. It is also about building the ice cream network, a common culture and a passion for ice cream.

The Ice Cream Academy should fulfil the following objectives: analyse training needs, set the standards of training, develop appropriate training packages, facilitate the delivery of training, evaluate the benefits of training, and facilitate the coaching of individuals.

Methods of delivering training

The major activity of the Academy will be to facilitate training delivery. This can be done in a number of ways: courses and workshops, documents and reading material, videos, and other distance learning material (e.g. interactive CD-ROMs).

The IC Academy acknowledges that courses are very costly. A one-week international course will typically cost an overseas unit about 2000 BP per head for travel, accomodation, etc. Courses and workshops, however, are attractive from many points of view (e.g. interaction, motivation, impact on trainee) and hence will be one of the major tools in the training program. For training large numbers of people (distance learning packages are expensive to create) new technologies can become interesting in the near future.

Organization of Academy

The Academy Chairman is the chairman of Iglo-Ola BV in the Netherlands who has taken on the role of championing the Academy. Unilever has made the choice for locating the Academy in a operating company, with its chairman championing the Academy, because of market closeness, the operating environment, organizational support, and focused leadership and responsibility of a Chairman. In order to keep in touch with the business, to remain up to date and confer credibility, the Academy must have strong links with the ICG and have close contacts with customers.

Adapted from Internal Documents and Letters on the Institutionalization of the Ice Cream Academy

Exhibit 7.5: The Ice Cream Academy.

among its managers exist to hold the organization together and to integrate managers responsible for different areas and functions. This common culture within Unilever relies on the careful recruitment, development, and acculturation of the key decision makers in the corporation. A senior personnel manager stated: "There is a need for a positive corporate culture within Unilever which does not challenge or replace, or even transcend the local manager's identity. Ideally," he said, "managers should feel fully nationals of their own country, yet equally fully members of the corporate club."

Unilever believes in recruiting high-quality talent and providing career development which is useful for both the company and the recruit. Quality of recruitment continues to be a basic concern and the company invests a great deal of time and effort in this activity. Despite its international orientation, Unilever does not necessarily look for an international aspect of the person's background during the recruiting process. It believes firmly that in their early 20s, people have plenty of scope to change and develop. "We are looking for those managers," the personnel manager argued, "who are prepared to cross boundaries." Moreover, Unilever is not interested in creating a separate cadre of international managers, but tries to get a large number of managers to be international. Unilever managers obtain international experience through expatriation, involvement in an international projects, an international role in their home countries, and participation in international courses, seminars, and workshops.

The responsibility for training rests with the head of the operating company, normally the Company Chairman. The central training effort is primarily concerned with the development of managers with the potential to reach senior levels within Unilever. Every year well over a thousand managers from Unilever companies and departments throughout the world attend programs on a central location near London, called Four Acres. This permanent residential training center of Unilever established in 1954 tries to provide the best possible environment to enable course participants to study, to learn, and to exchange their ideas. Apart from central programs (e.g., general management programs, functional programs, awareness programs), numerous product or process-related initiatives are taken. An example is the institutionalization of the Ice Cream Academy (see Exhibit 7.5) to develop its managers, to facilitate the creation of personal networks, and to stimulate passion for the business and the corporation.

7.5 UNILEVER'S MANAGEMENT TOOLS TO MANAGE KNOWLEDGE SHARING

In an industry in which local responsiveness has always been the dominant strategic task, Unilever's strategy of strong decentralization provided a natural fit with the emphasis on local adaptation. The company had a long history of building strong national companies that were sensitive to local needs and opportunities, allowing them the freedom to manage their local businesses in an entrepreneurial way, with minimum direction from the headquarters. However, various changes in Unilever's business environment forced the corporation to pursue

Management System / Implemented Tools within Unilever	Knowledge Sharing Awareness System	Knowledge Sharing Persuasion System	Knowledge Sharing Complexity Reduction System	Knowledge Sharing Media System
Unison	X		X	X
Managing a Corporate Language			X	
A Growing Process Orientation	X	X	X	
The "Innovation Funnel"	X	X	X	
Creating Interdependent Knowledge Networks	X	X	X	

Table 7.2: Some of Unilever's Management Tools.

major shifts in its strategic orientation. Due to such changes as the integration of the European market, the growing confrontation with global competitors, and the heightened pace of innovation, Unilever needed to increasingly exploit the potential synergies its portfolio offered without ignoring the demands and advantages of diversity in the international business environment. More integration, however, unavoidably affected the managerial autonomy of the operating companies and hence necessitated a dramatic alteration in the way Unilever had operated "in the old days."

Concerned with the possibility that any drastic change in management processes might threaten the strong internalized values and powerful information relationships that had historically linked organizational units, Unilever's management realized that it had to do more than changing the "blueprint" of its organizational structure. The key task was to reshape the core decision-making systems, and in doing so, the management processes of the corporation. Hence, Unilever's managers needed tools for managing such change that were more subtle but also more effective than the creation of a formal organizational structure. Identifying, developing, and implementing these management tools came to be the major challenge for reacting to the volatility of environmental demands and the consequential growing need for integration between the operating companies.

In the search for illustrations of mechanisms comprising the prerequisite management systems for managing intracorporate knowledge sharing, five recently implemented management tools offered substantial value in this respect (see Table 7.2). An in-depth study of these management tools has been performed, resulting in a brief description and evaluation of these tools which will be presented in the following five sections[3]. The first section will elaborate on the implementation of UNISON, an information technology & telecommunications project with the objective to extend the set of transfer mechanisms and to

---

3 No exact implementation date can be given with respect to these five management tools. Unilever often uses lead companies or lead product groups in testing their organizational innovations and, if successful, rolls out the concept throughout the firm via a cascade process. The roll-out can take many years and hence large differences exist with respect to the decision and effectuation date between subparts of Unilever. The order of presentation, however, strongly represents the line of discussion in several product groups during the period 1991 to 1996.

develop a corporate memory. The following section describes another effort by corporate management to facilitate communication between its companies, being its effort to achieve consensus on the definitions of common data-elements and information structures. The third section elaborates on the shift within Unilever to a more extensive focus on organizational processes instead of the traditional functional perspective. This shift to an extended focus on businesses processes has made it possible to better identify and exploit the non-product aligned opportunities for intracorporate knowledge sharing and discern common phases in the transition of some of these processes over the years. While the roll-out of a new way for managing dispersed innovation projects is the focal point in the fourth section, the final section emphasizes the increased practice within Unilever to create an interdependent network of companies in their regions by concentrating research & development resources. All these management tools have been reviewed and gradually implemented during the period from 1991 to 1996. All of them created major implications on managers throughout Unilever to share and adopt the available knowledge in their corporation.

TOOL #1: UNISON GLOBAL NETWORK INFRASTRUCTURE

In 1991 Unilever's corporate management authorized investment in a project aimed at the development of a seamless, flexible and securely managed Global Network infrastructure. This so-called UNISON project was initiated to implement a corporate "intranet" which enabled managers around the world to retrieve access to all of the firm's employees and information. UNISON aimed at facilitating effective interpersonal communication and smoothing the integration process of many of Unilever's businesses. Moreover, UNISON promised to offer the opportunity to record a corporate memory, whereby everyone in the company could tap into the problem-solving records of the past as well as pose questions in real-time. The notion that the entire knowledge base could be brought to bear on geographically widely scattered business problems seemed to be a very powerful concept.

UNISON would enable the sharing of ideas, internal and external research, formal and informal information, virtually instantaneously across geographic regions. Special interest groups concerned with product development, market development, innovation, etc. would be able to create computer conferences in UNISON to share and develop the best Unilever knowledge - unrestrained by location. Repetition of a similar development or problem resolution would be avoided and lessons learnt would be shared effectively. Moreover, using UNISON workstations, team members around the world would be able to work on the same information, package design, product development etc. as though they were all in the same office. Unilever managers would be able to work on the same issues together instead of solving identical problems alone. UNISON would enable the flow of information about an event directly to everyone concerned. This means that activities devoted to gathering and distributing information could be eliminated in an efficient manner, allowing the focus to be on adding value to information instead of reinventing it again.

Based on a recognition of the needs to realize more integration between the firm's companies, Unilever's top management authorized the kick-off of the UNISON project at the end of 1991. UNISON had to engender changes in working practice by providing Unilever's managers with a whole set of additional communication tools. UNISON aimed at exploiting new developments in the information technology and telecommunications area to build a system around a network of desk-top computers linking managers both with each other and with remote databases. The main components of UNISON were: (1) Global Electronic Mail Services; (2) Access to Corporate Databases (e.g. Research Databases, Competitor Monitoring Database, Advertising Library, Database on Legal Issues, "Hot Topic" Database); (3) Computer Conferencing and Desk-to-Desk Video Conferencing; and (4) Access to Operating Company Databases with facilities for data-sharing (e.g. market research, product development, materials sourcing, effectiveness of national promotions, TV commercials - including those of competitors). Next to these main components, various smaller initiatives were taken within the boundaries of the UNISON project like Networked Document Management (see Exhibit 7.6).

An investment in information technology and telecommunications, however, supports the activity of finding new ways of working and is not a solution in itself. Consequently, the most critical phase in the implementation process of the UNISON applications has not been the formation and installation phase, but the organization phase in which the changes in working

Document Management

Another initiative of the information technology group of Unilever is Networked Document Management. The increased use of word processing and electronic mail has caused a major increase in the number of key business documents which are being created and distributed electronically. Within the traditional office environment these electronic documents are either translated to paper and manually filed or are left on the local PC, only available to a single user.

Networked Document Management can be of benefit for different reasons:

* The individual computer user will find it easier to work with his own documents and, should he leave the company or be absent, his work will not be "lost" on his PC.

* Document Management enables a team to work together on the creation of reports and is a repository for all their supporting documentation.

* Information libraries will be able to respond more quickly to requests for information and will be able to retrieve information based on powerful search requests that would not be possible with paper or simple PC filing systems. Additionally, library users will be able to access the library directly from their own PC screens making access to the information faster and more efficient.

The use of Document Management is not, of course, limited to just word-processed documents or "images." Any electronic file can be managed by a Document Management System, including video clips, sound bites and program code.

Adapted from Internal Documents.

Exhibit 7.6: Document Management within Unilever

	1991	1992	1993	1994	1995
E-Mail	3,500	8,000	18,000	35,000	55,000
Lotus Notes	300	1,500	5,000	12,000	20,000

Adapted from Internal Documents.

Table 7.3: Estimate of Number of Employees Technically Connected to the Network.

practice engendered by UNISON became apparent. After a few years of experience with the new applications from UNISON, the implications and results of the UNISON project are ambiguous as observed by both IT managers in the Foods and Personal Products business. While the E-mail and data-sharing capabilities of UNISON are being used increasingly and, in some cases, intensively, one of the key components of UNISON, the Lotus Notes application, is less successful and has not been exploited yet to its full potential by Unilever's managers around the world.

Lotus Notes is a client-server application that enhances group productivity by allowing users to share information, while also allowing individuals easy customization of this information to suit their individual needs. Lotus Notes allows a user to create custom applications, to send and receive messages, and to access multiple databases of documents, facts, figures, records, memos, and ideas. Using Lotus Notes, a group of people can share information, even if those people are in different locations. Notes is interactive, one can reply, comment and expand on the information provided. The software itself can best be compared with a "file cabinet" containing documents. The difference is that the documents can contain any kind of information: text, numbers, graphics, spreadsheets, photos, etc. With a number of "keys" one can sort the information and show extracts of it in overviews. When applicable one can edit the information, compose new documents, make remarks, etc. Often the applications are menu driven and button controlled. One does not need specific skills; a basic Lotus Notes training is sufficient to understand the concepts, learn the basic commands and work with the software.

"Technically," an information member of Unilever's Personal Products Coordination stated, "Lotus Notes is implemented successfully with approximately 20,000 managers connected at the end of 1995. In contrast to electronic mail, however, which has become a phenomenal success, the use of Lotus Notes (e.g., access rate approximately 5 percent) is not as high as expected based on its advanced features. Probably," the information member argued, "this can be partially explained by a misfit between Lotus Notes and the Unilever culture. The Unilever culture is a very broad network of contacts, often one-to-one, sometimes one-to-few. Members of our organization feel comfortable with sharing on an one-to-one basis and with persons you know. [...] With the telephone and electronic mail both the provider and the receiver of the knowledge are in control. The telephone and electronic mail comes to you on your desk and is directed to you personally. Consequently, the telephone and electronic mail closely fit the Unilever culture. [...] In contrast, with Lotus Notes you do not know who receives your

information and it is information to all. We experience within the Unilever organization the reluctance of people to share their information and experiences with an unknown audience and this misfit of the Lotus Notes application with the Unilever culture has probably very strong implications for the unsatisfactory exploitation of this advanced communication tool till this moment."

"Besides the use of Lotus Notes as an additional communication channel, Notes can also be used for the identification of knowledge sharing opportunities," the information member further explains the potential value of this application. "There are a great number of Global Lotus Notes conferences on most of the common issues in our businesses. Most of the topics are fully explained, the corporate policy given, and implementation guidelines presented." Overloaded by the enormous amount of available information in the Lotus Notes databases, however, many managers throughout Unilever hesitate to log into these information sources. As one of the marketing managers of a company in the Personal Products division stated: "I still give priority to exploit my informal network and our coordinations in an attempt to serve my knowledge needs within Unilever. Although this approach will probably be less time-efficient, the personal contact with my colleagues will make my problem well known throughout Unilever and will provide me with their thoughts on my problem and the available knowledge sources internally. But even if I do not need these additional qualifications, the chance that I will find the required information via the electronic network is too uncertain yet and the information is in most cases not customized to my specific needs at all."

"Moreover, you have to be realistic," the information member of Unilever's Personal Products Coordination stressed. "Given that we have more than 300,000 employees, is there any reason why the managers within Unilever should be any different from the rest of the population at large? How many of the population at large is sharing information electronically? [...] Given that Unilever's human resource policy does not include prerequisite IT&T skills in their selection process of new employees, why should Unilever be any different than the rest of the world? We do not recruit people on familiarity and ability in this area and therefore there is no reason to believe that we should be better in this respect than the normal population. [...] There are a number of early adopters in the world and we see the same phenomenon within Unilever."

As a consequence of the UNISON project, Unilever is currently in a leading position in the exploitation of certain communication technologies. The UNISON project defined the IT standards, products, and infrastructure to support new ways of working. Early experiences with the UNISON applications made it clear that various applications are an important addition to the set of communication channels managers could use for the transfer of information and data. As a Corporate IT manager stated, "Unilever has built an infrastructure which enables intracorporate knowledge sharing. We do not have, however, an electronic sharing community yet. The major way knowledge is shared is still through personal ad hoc contact. [...] Although the use of electronic media is growing, it is disappointing to see the rate with which it is growing. "

Unilever's Open System Policy

To be able to react to the various future trends and leverage the development activities within Unilever quickly, Unilever has decided to create an infrastructure which can rapidly respond to any opportunity that arises. The Unilever organization has to evolve to meet changing business needs, enabling the exploitation of new opportunities. This means a continuous shift in the balance between product, region, and functional management. The infrastructure must enable rather than present a barrier to these changes. With this in mind, Unilever decided to migrate its operating companies to Open Software Foundations (OSF) protocols. The OSF standard will allow several operating companies to share the costs of software systems that none could afford to develop alone. The Unilever IT Policies for Open Systems are developed with the specific goal of supporting Unilever's increasingly transnational business operations and business priority for rapidly sharing business innovation and best practice across the corporation. As such these policies provide a standard global infrastructure for the sharing of information and knowledge (sharing applications between companies to exploit proven success and facilitating the sharing of structured and unstructured information between companies, Management Groups and Corporate Functions).

Policies are classified into three categories: mandatory policy, recognised policies, and referred policies. The key points from the present policies are: the policies are based upon client-server computing, all servers must be open-system computers (UNIX) purchased from IBM, DEC or HP, client computers will largerly be PCs, Oracle has been approved as the standard database system and a number of products have been specified to be used to develop new applications. The policies mandate products for: word processing, spreadsheet applications, electronic mail, computer conferencing, and business graphics. The vision behind the open system policy is the improved possibilities for technology migration. It must be able to implement developed or acquired applications within 10 days all over the world. For the end of the century all sites have to migrate to the UNIX environment.

The ability to transfer applications systems rapidly between companies is one of the principal benefits of Unilever's open system strategy. Compliance with the open policy definition provides assurance that software will execute on any of Unilever's approved hardware/operating system platforms. The open system policy invalidates the excuse of operating sites not to implement certain applications from the viewpoint of technological differences. In addition, compliant software applications will be able to interoperate, transferring data at speeds appropriate to business need and thereby achieving the systems integration necessary to support changing business practices.

The functional richness and quality of commercially available packaged software make it increasingly unnecessary to develop mainstream transaction systems in-house. The trend will be to target internal development effort upon applications which can provide unique added value for Unilever's businesses, integrating with, or bridging between, packaged software to provide information or functionality not otherwise available. By decomplying with the open system criteria, and adhering to the Unilever Systems Development Methodology, internally developed software will be fully portable within Unilever. In time, Unilever companies will therefore themselves be an important source of packaged software; by giving other Unilever companies a fast start to the use of innovative applications, such software is a potential source of competitive advantage.

Adapted from Internal Documents.

Exhibit 7.7: Unilever's Open System Policy

Unilever's World Class Applications Policy

As Unilever companies move increasingly to the use of packaged software for their mainstream transaction systems, there is a clear risk that very large numbers of different packages could be installed. There will as a consequence be no opportunities to create core skills and transfer the best business ideas between companies, or to share investment in the best of the known solutions. It has been agreed on a corporate basis that a small number of software packages will be approved for use in each business area, so that companies may focus their energies upon quick, high quality implementations which build upon the experience gained elsewhere in Unilever. The number of approved packages in each area is determined by the functional scope implied by the range of Unilever business processes. It is expected that within each functional area there will be a mixture of broad scope, fully integrated packages, and "best of breed" packages highly specialized for the function.

The primary requirement for all software products purchased in future by Unilever companies is that they must adhere to the Open Software Foundation. Moreover, for packages to be able to meet Unilever's needs globally, each must be able to accomodate the needs of multi-site transnational businesses. For example, multiple natural languages and currencies must be supported, and vendors must be able to provide an international distribution and support organization. The term "World Class" has been coined to describe the criteria which embody these considerations and the software products which conform to them.

A corporate team acts as a clearing house for information about such developments and will be able to bring together people with a shared interest. Selection of a specific applications software package for use within a particular mainstream context will be made only from the set of Candidate World Class Applications as prepared by the Corporate IT Policies Committee. A database is being established by the World Class Applications Working Group to store details of all leading software vendors in our areas of interest. The basic details of all software qualifying as Open will be kept up to date within this database by ITG, including global distribution contacts and details of Unilever users. In addition, there will be facilities to record and disseminate information about companies' implementations of packaged software and the business context in which such implementations are taking place. The database will progressively be made available on-line to Unilever locations by means of the Shared Information Network.

Adapted from Internal Documents.

Exhibit 7.8: Unilever's World Class Application Policy.

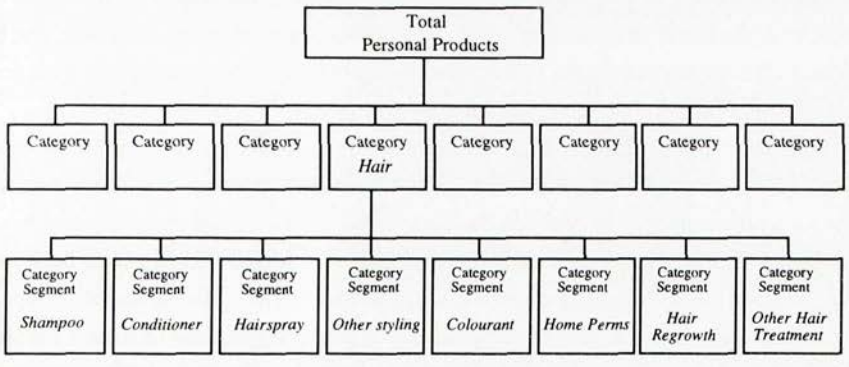
TOOL #2: MANAGING A CORPORATE LANGUAGE

Apart from authorizing the effectuation of the UNISON project and hence advancing the possibilities to track knowledge sharing prospects, Unilever's corporate management also facilitated intracorporate knowledge sharing by institutionalizing a jointly understandable "language." Companies communicate internally through their own phrases and concepts - their own language (Von Krogh and Roos, 1995: 390). Due to years of operating independently, each company has developed its own definitions. The local meaning of that language is very difficult to transpose into another company's language and hence complicates the exchange of information notably. The only information component Unilever has standardized and properly defined in the past was the "top line" (e.g., revenues, costs, profits). Unilever acknowledged,

however, that without a common language, knowledge could not easily flow from person to person. The availability of mutually understandable definitions of data-elements and information structures was a prerequisite condition for sharing knowledge.

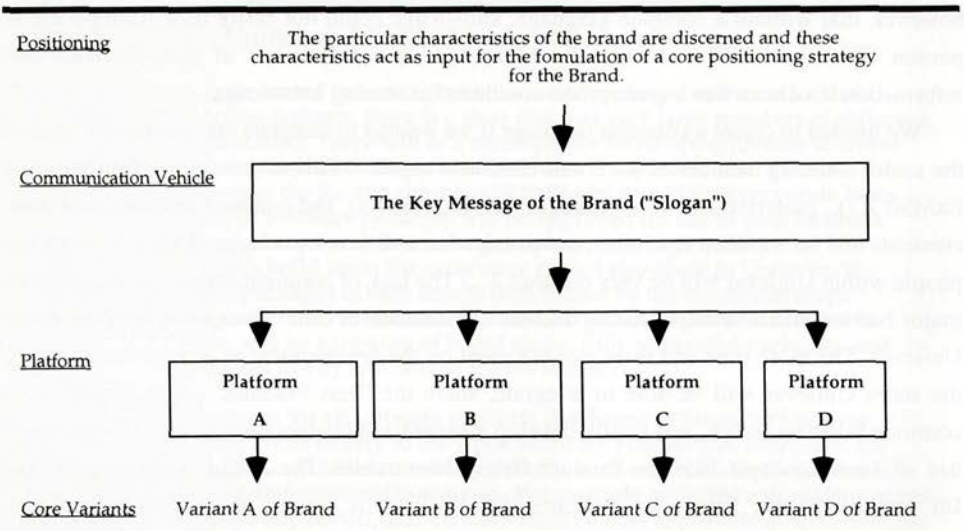
"We needed to create a common language if we wanted to integrate our companies," one of the senior sourcing member of the Foods Executive urged. "Without standardized systems (see Exhibit 7.7), preferred software packages (see Exhibit 7.8), and common definitions of data-elements and information structures, communication and thus knowledge sharing between our people within Unilever will be very difficult. [...] The lack of common definitions is one of the major barriers to knowledge sharing and the exploitation of other economies of scale within Unilever. The more time and resources we spent on the development of a common 'language' the more Unilever will be able to integrate, share the 'Best Practice,' communicate about common business issues, and jointly develop standardized business solutions." The increased use of such concepts like the Product Group Hierarchies, the Brand Architectures, and Information Supply Structures indicates that Unilever is serious about their objective to develop more communality in the utilized definitions throughout the Unilever organization and aims for the establishment of a corporate language.

For a high-level standardization of the applied information structures, Unilever increasingly applies so-called Product Group Hierarchies. In the Product Group Hierarchy three levels can be discerned, namely the product group, the product category, and the product category segment (see Figure 7.5). In the past, discussions on operational and strategic issues were less structured and less comparable because no common conception of the market existed. The Product Group Hierarchy provides a notion of Unilever's business in a particular product group and hence a strategic planning architecture which facilitates communication on the portfolio of business activities, new product concepts, and opportunities for integration. Besides its use for strategic analysis and decision-making, the Product Group Hierarchy assists in the aggregation of data and is useful in the informal communication process. By using the hierarchy, companies can be compared and opportunities for knowledge exchange detected. In the



Adapted from Internal Documents.

Figure 7.5: The "Hierarchy " of Unilever Personal Products' Hair Business.



Adapted from Internal Documents.

Figure 7.6: A Hypothetical Brand Architecture.

particular case of Unilever Personal Products, the registration of the product group hierarchy and the aggregated company data is done in a system called PREMISE. The PREMISE system is a single system which is placed on a server in Unilever House in London and can be remotely accessed from anywhere in the world since the beginning of 1995.

Brand architectures are increasingly used to ease communication on brand strategies and management of the portfolio of core variants of a specific brand. So, while the Product Group Hierarchy is applied to conceptualize the structure of the market, a Brand Architectures provides a notion of the functionality of the brand and gives a description of the positioning of the brand in the market. A regular brand architecture comprises four elements: basic brand positioning, communication vehicle (advertising framework), the various platforms that exist for the brand, and the core variants (see Figure 7.6). "The brand architecture," a senior marketing member of Unilever Ice Cream, explains, "describes the ongoing experience of the consumer with the brand and connects strategy to products and projects. Moreover, the brand architecture allows for a discussion of the relationship between brands and provides a context for the evolution of the product portfolio over time."

Apart from the definition of these high-level information structures to smooth communication, the standardization on the data level has become a major issue within Unilever to enable connectivity between the companies' databases and operating systems. The Unilever standard Information Supply Structure (ISS) is a design that has been built to deal with the corporation-wide interface between applications, sites, management groups, and regions. It is positioned as a re-usable component of any lead project and facilitates the sharing of data between any two applications that have this component built in. Before information shared via the ISS makes sense, however, management agreement must exist on the Data

Architectures that explicate the structure and meaning of data components. Applications that are ISS enabled can share data easily but only if the same business definitions and objects are used in both places. Because the ISS cannot stop "garbage in, garbage out," the only way to get comparable information is to provide appropriate ownership, covering business definitions and procedures for creating and maintaining them. Without information owners seriously fulfilling their ownership responsibilities, the information exchange processes in the organization can be significantly blurred and frustrated.

TOOL #3: A GROWING PROCESS ORIENTATION

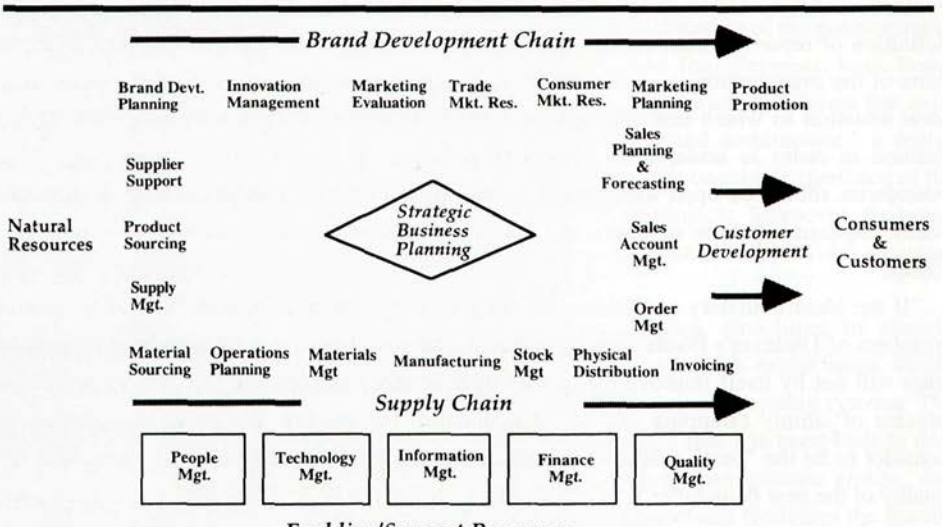
Historically, the Board organization of a typical Unilever company was defined on the basis of functional directors. The functions were defined as marketing, sales, commercial, technical and personnel. The functional structure has evolved over time, but largely in response to the various stages and needs which have been addressed in the company's history. Looking ahead, it is apparent that some of the factors that determined the organization structure in the past, will not be so important in the future. Consequently, to be able to analyze and improve its operations in the future, Unilever has moved to a more extensive focus on organizational processes instead of functional areas. Although most companies are still structured based on functions, managers throughout Unilever gradually start to communicate in terms of business processes.

The most important conceptual switch for Unilever managers when thinking process-oriented is represented by the fact that work activities (processes) overwhelmingly flow horizontally across an organization, whereas organizational structures are predominantly vertical in nature. Unilever has experienced over the years that any division of work or definition of reporting lines creates boundaries. Managing the boundaries between different parts of the organization is one of the most important tasks of Unilever's management. The ideal situation to which this corporation is trying to move, is when boundaries are clearly defined in order to understand who is responsible for which activity. However, those boundaries should be open with regard to information flows, an understanding of customer needs, requirements from suppliers, and a widely shared understanding of long-term goals and values.

"If the ideal boundary conditions are not present in our organization," one of the senior members of Unilever's Foods Executive stated, "simply changing the departmental reporting lines will not by itself improve the quality of boundary management. [...] We are not in the process of simply swapping one set of boundaries for another. We are defining what we consider to be the "best" position for boundaries and then we must go on to ensure that the quality of the new boundaries is as we ideally wish them to be. [...] The best way to keep open boundaries between processes and departments," the senior member of Unilever's Foods Executive stressed, "is to encourage management and employees to raise their understanding and awareness of work flows within the business."

Although such a process orientation is growing in Unilever at large, differences exist between the product groups considering the importance of this approach. A senior manager who made the move from Personal Products to Foods in the beginning of 1996, explains: "The urge to focus on processes on an inter-company level is much larger in Foods than in Personal Products because it provides the Foods group with the opportunity to identify and exploit the non-category aligned synergies of their operations. [...] Unlike foods where you have separate companies for separate categories, Personal Product has one company in each country effectively for all their product categories. So, unlike foods where little communication can exist between, for example, the Tea companies and the Ice Cream companies, there is absolutely no danger of lack of communication between the categories in Personal Products. Personal Products is much smaller and far less complicated than the Foods Product Group. Because the six categories are all marketed and sold through the same company, intracorporate knowledge sharing has never been obstructed significantly between the product categories of Personal Products. [...] For the communication and knowledge sharing between the product groups, however, the process orientation can probably become an important management concept. There are various processes in our foods, detergents, and personal products businesses which are common. Value could be created by sharing the existing knowledge on these processes among our product groups."

A senior manager of the Foods Executive confirmed these statements. "Our abilities to exploit the inter-company synergies," he argued, "are dramatically increased because of the growing process orientation in our foods business. [...] We are now able to bring people together based on their category expertise or their knowledge of a particular business process. In the past the functional directors came together, but often their perspective on the business



Adapted from Internal Documents.

Figure 7.7: The Process Definition of Unilever Foods.

was too generic to identify the opportunities for intracorporate knowledge sharing. [...] Not the functional directors, but their subordinates often possess the needed understanding and awareness of the issues of specific business processes to discern these opportunities. By bringing people together based on their knowledge of a particular business process our hope is to improve our abilities to generate synergies beyond our product categories. Of course, we are still in a process of transition and many processes still have to be defined more clearly, but the early results are promising."

Unilever's conception of the business processes in its foods business, as depicted in Figure 7.7, comprises three main processes (i.e., supply chain, brand development, customer development) and five enabling processes. Management tools have been developed and institutionalized to detect, register, and transfer best practices with respect to most of these business processes. In the following of this section, however, particular attention is given to those management tools stimulating and facilitating the leverage of skills and know-how in the Customer Development area. The customer development process is of particular interest for this study of intracorporate knowledge sharing because the sales area is one of the few areas in which the deliberate choice was made not to concentrate knowledge development resources. The need for local adaptation and hence operational leeway in this area necessitates the management of scattered knowledge items. Instead of implementing lead companies or competence centers to be discussed in the fifth section, management tools have been created to motivate front-line managers to share best practices with their colleagues around the world. Although markets and sales operations differ strongly between countries, a lot of the tools and basic sales techniques are based on common grounds and need to be shared to prevent the issue that "the wheel is reinvented" all over the place.

As a Sales Member of Unilever Foods stated: "In the past, there has been less inclination to spread and impose common practice in the sales area. We used such mechanisms like expatriation, central training activities, the informal network, and functional experts like me. [...] The best practice within the sales area was exploited piecemeal with no effective mechanism in place to ensure timely transfer of skills and experience. Hence, each company was confronted with common issues in this area but went primarily individually through the learning process of developing their customer (e.g., retail, gas stations) approach. No or very few opportunities to share our knowledge were exploited."

"Starting with the focus on processes, however," the sales member continued, "we increasingly acknowledge the communality of many of our business issues. We felt the need to exchange the best practices between the operating units and we in the center tried to stimulate and facilitate that process. [...] In contrast to audits, identifying best practice is a program that focuses people's attention on the way processes are managed, rather than on results. The best practice approach views improvements as a continuous process of discovery, not an intermittent series of solutions to overwhelming problems. [...] Due to major increases in the tempo of worldwide customer management developments and the variety of initiatives which have sprung up within Unilever, sales coordination has decided to establish a better foundation

for avoiding very expensive and recurring duplications of mistakes and successes." As a consequence of this ambition and within the confines of the growing process orientation, several aids were developed to detect, register, and transfer best practices (e.g., booklets on existing practices, registration in Lotus Notes of best practice locations). Two particular aids, the so-called Customer Management Roadmap and Customer Management Benchmark, both implemented at the end of 1995, strongly stimulated and facilitated the intracorporate knowledge sharing process in this particular area and are therefore both briefly discussed below.

The Customer Management Roadmap assists chief executives to plot the future course of their company with respect to customer management and identifies missed turnings that may be slowing the progress. In applying the Roadmap, chief executives are asked to assess the business environment and competitive positioning of the company, set goals for the next two to three years, evaluate the current capability versus future needs to establish development priorities, and establish an action plan for the ongoing development of customer management capabilities. The Roadmap is designed to help chief executives carry out these tasks by describing the prerequisite conditions in various areas of their business. As depicted in Figure 7.8, the customer management process can be upgraded in a gradual way. During the evolution of the firm's customer management process new demands are put upon the firm's performance in such areas as human resources, supply chain, and innovation. The Roadmap describes the

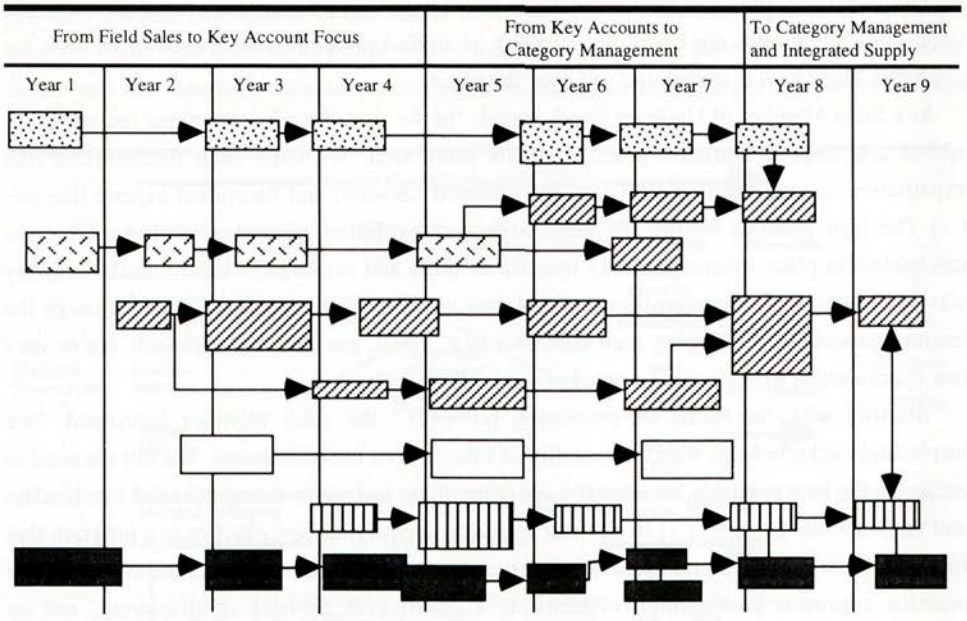
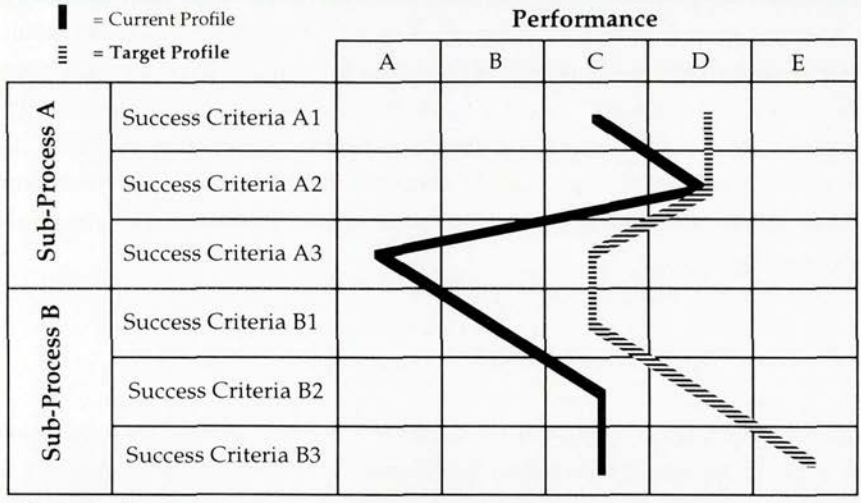


Figure 7.8: The Main Routes in the Customer Management Roadmap.



Adapted from Internal Documents.

Figure 7.9: Benchmarking Profile.

prerequisite changes in the functional areas to evolve, for example, from a field sales to a key account focus or from category management to integrated supply management. By filling in the included questionnaire, companies can make a self assessment of their current capabilities and identify areas for management action.

The Customer Management Benchmark complements the Roadmap and is increasingly used to register current performance levels and to point to a desired course of action. The "Benchmark" identifies ten sub-processes necessary to achieve the overall purpose of customer management. The related questionnaire requires the company team to assess actual practice for each sub-process against a number of success criteria (see Figure 7.9). The success criteria are based on process benchmarks with Unilever companies and non-Unilever companies with related process requirements in the customer management area. The benchmarking process helps companies to self-audit their customer management process and compare their practices and organizational inputs with those of other Unilever companies. By focusing on the inputs or practices that determine the performance achieved rather than on process outcomes or performance data, valuable conclusions can be distracted from this benchmark on the required management actions. Moreover, the benchmark helps to identify where best-of-class performances are being achieved and to develop an action plan for improvements using a network of Unilever contacts worldwide to help them achieve their improvement actions.

"Both the Customer Management Roadmap and the Benchmark document were received very enthusiastically by the three fast-moving-consumer-good product groups of Unilever," a senior sales member of the Foods business argued. "Besides the document's assistance in identifying knowledge for serving a prevalent knowledge need, managers often have a problem with defining their knowledge requirements. Both the Roadmap and the Benchmark can provide you with valuable ideas for further advancement of your company. [...] Moreover,

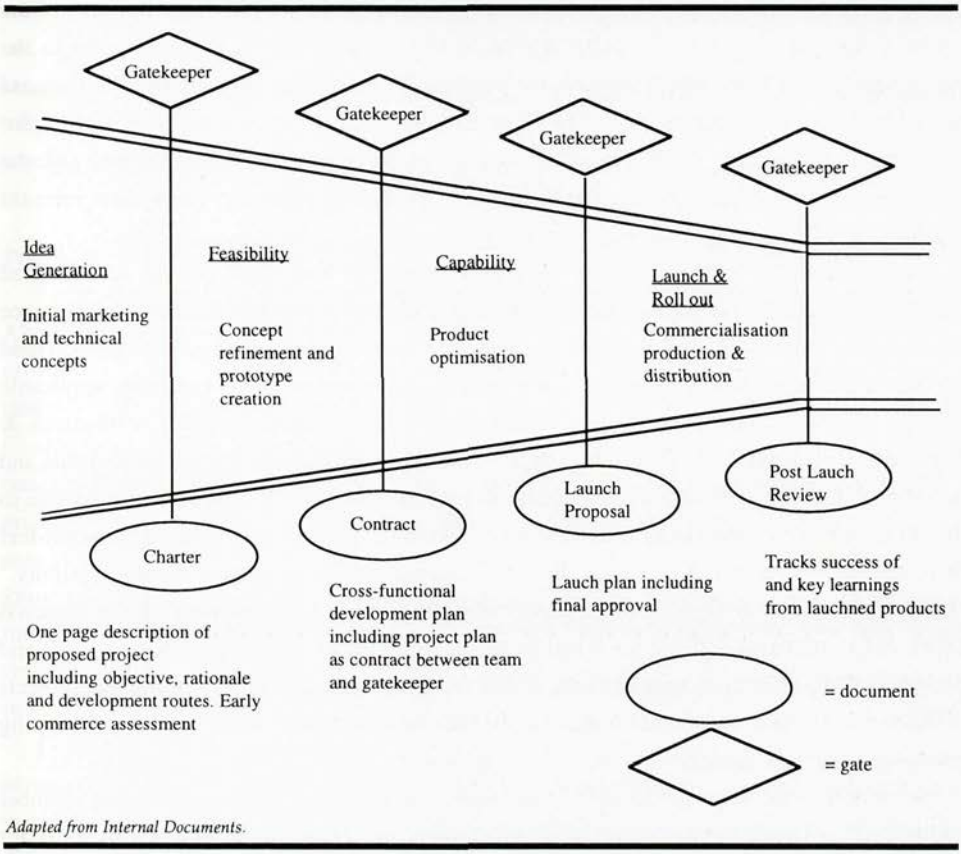
both documents can be used by the coordinations in the Center of Unilever to identify Best Practice and increase the pressure on companies to participate in the provision and deployment of available knowledge within Unilever. [...] The assessment given by each document identifies improvement options by comparing the business situation in the companies. Profiles are made up which enable the results of the assessment to be pictorially displayed, and for current and targeted practice levels to be compared. [...] I think we have two powerful techniques added to our "tool box" for stimulating and facilitating knowledge sharing throughout Unilever."

TOOL #4: THE "INNOVATION FUNNEL"

Unilever companies invest millions of US dollars in innovation projects for the development of new ideas or the implementation of new concepts. Historically, all companies within Unilever were encouraged to innovate drawing on ideas from themselves, suppliers or others. It was emphasized that innovation can come from anywhere and that successful innovation needs to be anchored in local markets and in companies where the necessary partnerships between marketing and development exist. While these notions are still valid, Unilever started to recognize in the beginning of the 1990s that in order to meet its growth requirements and to maintain its competitive position, the corporation not only needed innovation of the highest significance, originality and merit. Unilever also needed innovations which could be utilized as widely and quickly as possible via existing and new brands. Unilever's view came to be that a continuous flow of day-to-day innovations would always be needed but that significant additional business could only come from new "big" ideas and concepts to be exploited internationally on a timely basis.

Apart from enabling communication between its managers and putting pressure on this process, Unilever's corporate management came to be convinced that it had to play a central role in creaming off its cornucopia of creative ideas within the corporation. "In the past," a Senior Marketing Member in the Ice Cream business of Unilever Foods argued, "there was the tendency to launch too many new brands and fritter away money behind too many small properties. For example, we had at a certain moment in time about 300 development projects within the Ice Cream Business if you added them all up. That is nonsense, certainly when you think that we are confronted with two mega global competitors. [...] We had the deliberate policy to let 'flowers' grow and if they were beautiful we picked them and spread them over our companies. This philosophy, however, led to a situation in which a lot of small activities were going on in our companies, but real innovations were not realized. Obviously, the portfolio of each company needs to be tailored to the local needs, but building much bigger, more powerful brands which can be rolled out quickly, efficiently, and effectively was a step Unilever was forced to take."

To improve the management of the innovation projects, a set of new tools (e.g., innovation funnel, consumer/technology matrix, resource demand chart) has been implemented gradually



Adapted from Internal Documents.

Figure 7.10: Unilever's Innovation Funnel.

throughout the Unilever group. All product management groups have incorporated a strategy for innovation through new product development as part of their overall business plan, and recognized the need for a system to evaluate and select projects to support key business objectives. A core element of the formal innovation process was the "innovation funnel" concept. The input to the funnel includes new product ideas and enabling science and technology, all driven by business strategy. These ideas are progressively developed through a series of formalized decision gates at which the product and process ideas are accepted or rejected. In this way, only the most innovative and successful ideas will be taken further and converted into new products or processes (see Figure 7.10).

Any new idea can enter the funnel, no matter where they originate. Ideas then go through a series of phases, from initial idea to roll-out of the finished product into the market. To graduate from one phase to the next, however, a project must be approved by gatekeepers, drawn from appropriate senior management, who have wide experience of innovation. The gatekeepers will only consider allowing a project through to the next phase if certain specified tasks have been completed by the project manager and his team. The gatekeeper looks at the results of the tasks and assesses whether the project is worthy of entering the next phase.

Gatekeepers make their decisions not just on the merits of the project itself but also in the wider context of the whole of Unilever's business strategies. To do this they refer to the Aggregate Project Plan, which displays the portfolio of innovation projects and the business impact that they are likely to yield. The Aggregate Project Plan has a number of aspects, for example, the Consumer Perception/Technology Matrix, a Risk Profile Figure, and the Resource Demand Chart which provide gatekeepers with the necessary and most relevant information.

The new set of innovation tools resulted in a formalized innovation process with defined decision points, a system for evaluation, selection, and prioritization of projects, performance measures for innovation, and a culture that encourages creativity and a passion to win. These innovation projects could yield either a new or revised product or a new capability applicable to current and/or future products that would support future business needs. A Research & Engineering manager said: "the new set of tools are attractive because it provides a visible and universal opportunity to collect ideas from all parts of Unilever. It rigorously forces one to decide priorities by elaborating the risks and opportunities. It shifts the balance from gut-feel and subjectivity to a system of greater discipline and accountability without stifling creativity." "Unilever has always been good at generating ideas," a strategy member of the Personal Products Coordination added, "but it had problems deciding when to stop work on an idea and concentrate resources on other projects. Now, though, we have begun to prune our projects judiciously by using the funnel and its associates tools at senior level. And good pruning produces a fine rose garden."

"It is not difficult for us in the Ice Cream business to innovate," a senior marketing member in the Frozen Foods business said while explaining the value of the new set of tools for managing the innovation process. "You can change almost every aspect of an ice-cream. [...] More difficult and critical, however, is identifying the ones that are really going to be good for our business. [...] With the new set of innovation tools we can now pull forward on a consistent basis everything what they are doing in a certain segment or product category. This implies more central control because you cannot invent a new brand without the agreement of the Center. [...] However, we hope to become able to manage a portfolio of global, regional, and local projects which will lead to the right balance between scale and local adaptation."

Besides the value of the innovation funnel to select and concentrate the development resources on the most promising projects, the innovation funnel is of great help in accelerating the global roll-out of innovative products. "In the Ice Cream business," the senior marketing manager reflected, "it took us more than 20 years to roll-out the Cornetto internationally, Viennetta about six years, and Magnum about 5 years. Because we now got our act together we launched Solero in Europe in one year in 1995. Because competition will copy it, it is just an absolute necessity to effectuate a quick roll-out." The discipline of the funnel will encourage the use of a common language when describing projects. Moreover, by communicating the status of projects and asking for early feedback on development activities and test results, the hope is that all the prospective "adopters" are going to be committed to the

work done in the innovation projects and will allocate the required local resources for the roll-out of the outcomes. Without sufficient commitment and funds at the front-line level the launch of an innovation will most expectedly fail. The operating plan cycles are increasingly used by corporate management as an effective tool for controlling and putting pressure on the companies in this respect.

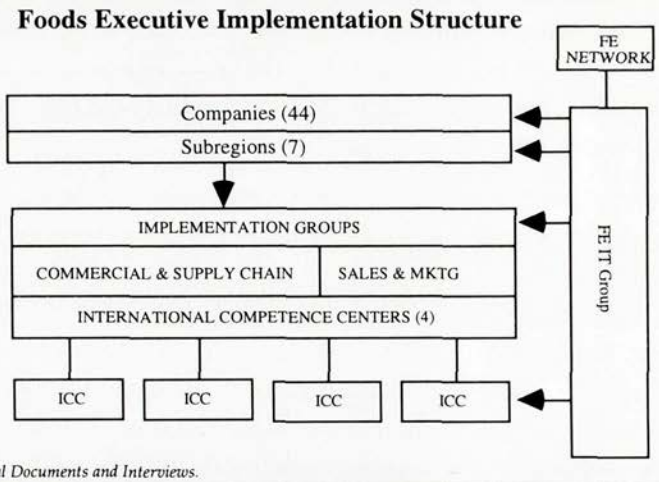
TOOL #5: CREATING INTERDEPENDENT KNOWLEDGE NETWORKS

Although knowledge sharing can be stimulated and facilitated by the tools presented in the previous sections, managing dispersed development resources, however, remains a difficult task and is strongly dependent on the willingness of the company managers to cooperate. Consequently, Unilever tries to force its managers to increase their adoption of knowledge by concentrating development resources and activities. While the other tools facilitate and put pressure on the companies to transfer and adopt knowledge to and from other companies, the notion of lead company, competence center, innovation center, and center of excellence makes knowledge sharing inescapable. By concentrating the knowledge development resources, interdependencies are created between companies. Bringing together the best people in a certain area should result into "better" solutions and should lead to the reduction of duplication in knowledge exploration activities.

The importance of these kind of knowledge networks made the researcher decide to investigate the concept in two functional areas, being the information technology area and the marketing & development area. Each of the functional areas has its own particular needs and demands and these differences should be integrated in the implementation approach.

THE INFORMATION TECHNOLOGY AREA

"Today, the willingness to share within the IT function in Unilever Foods," an information member of Unilever Foods stated, "is quite high. On the one hand, this is caused by the fact that the main issues related to information technology are quite universal and often require only minor adaptations to the particular company systems and circumstances locally. Consequently, IT managers are much stronger oriented to their functional colleagues than managers in other disciplines. [...] On the other hand," the information member stressed, "the willingness to share knowledge has grown due to a deliberate corporate IT policy during the past few years. At this moment we still have in each company a fully-equipped, independent Information Technology department. A department with an IT director, and several system-analysts, system-developers, and people for the maintenance of the systems. [...] These departments can operate totally independent of the other IT departments within Unilever and possess all the resources they need to operate effectively. In other words, all the resources are locally possessed to "side-step" the demand to share available knowledge internationally. [...]



Adapted from Internal Documents and Interviews.

Figure 7.11: IT structure in the Unilever Foods Area since 1993.

Consequently, a corporate IT policy was needed to reduce the duplication of knowledge acquisition and learning experiences."

Over the past few years, several actions have been taken by the corporate center to increase the exploitation of internally available knowledge. For example, compulsory policies regarding preferred systems and applications have been formulated to increase the communality and interconnectivity throughout the organization and Implementation Groups have been established to put pressure on the implementation of certain preferred systems and to control the efficiency and effectiveness of the implementation processes. Moreover, the Corporate IT Group started to institutionalize what are called International Competence Centers to concentrate the knowledge development activities on specific applications in 1993. "We have tried," the information member of the Foods Executive explains, "to create a kind of service centers which could assist the local companies with the implementation of their key applications." Four International Competence Centers were created with the responsibility to lead the developments on six key applications of the food business operations. These Competence Centers are not funded by the operating companies. Although corporate management acknowledged the advantages of establishing a kind of "buyer-seller" relationships between the companies and the competence centers, they wanted to circumvent the difficult and political sensitive internal payment issues and did not want to create an additional barrier to the transfer of knowledge.

"We try to provide added value to the implementation and use of our application," a manager of one of the Competence Centers stated, "by developing and promoting common implementation approaches, assisting in implementation plans at operating companies, and facilitating the transfer of knowledge and information from the ICC to the operating companies and between operating companies. Based on the required functionality, we advise companies commencing with the implementation process of the application regarding the most suitable

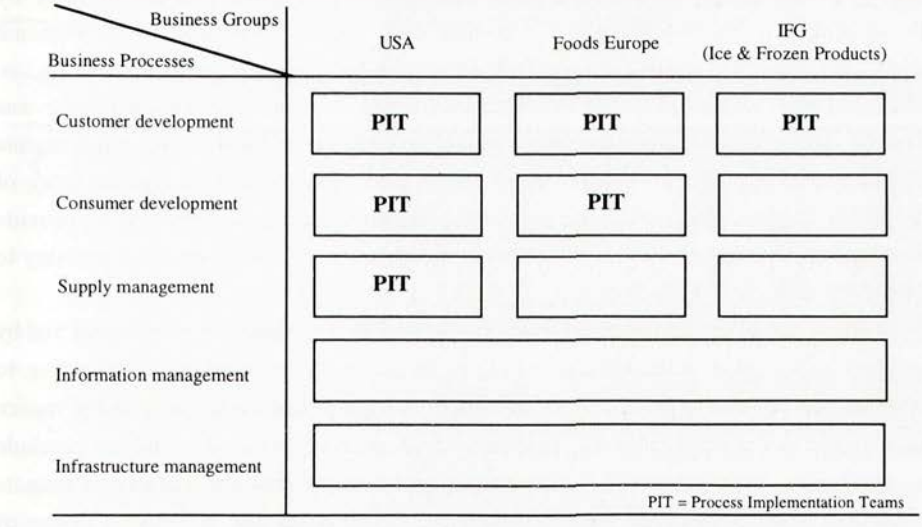
TASKS	MECHANISMS
* Provide a standard implementation methodology	* Company Visits - Implementations - Implementation reviews
* Develop common standards for customization and common interfaces	* Phone/E-mail support - MFG/PRO functionality - Company experience
* Define, collect, and follow up on generic developments	* Lotus Notes Conference - Electronic Conference - Reference Documents - Enhancement Requests
* Manage the supplier	* Workshops/Seminars
* Inform and communicate with regional support teams	* Newsletter
* Collect, manage and distribute information related to the implementation and use of the application	
* Supply companies with information on new releases	

Adapted from Internal Documents

Table 7.4: Tasks and Tools of International Competence Centers within Unilever.

consultant, the optimal project team, the strengths and weaknesses of the package, the standard use, and the key elements of a appropriate project plan. Moreover, we are the main communication and coordination group for Unilever with the suppliers. [...] Effectuating the implementation of the application in the operating company, however," the manager of the International Competence Center continued, "remains the responsibility and task of the local project team. Although we try to identify the needs and demands of the operating companies in which we assist during the implementation process, the local team, assisted by a local consultant, develops the system for the local company. [...] Much of the knowledge acquired in the implementation process remains unexploited in this way."

Especially for this latter reason the Foods Executive Information Group has decided to gradually implement what are called Process Implementation Teams (PITs). Notwithstanding



Adapted from an Interview with a FE Information Member

Figure 7.12: The Responsibilities of the Process Implementation Teams.

the growing exploitation of knowledge on typical mistakes, preferable solutions, and reliable consultants via company visits, seminars, and newsletters (see Table 7.4), probably the largest amount of knowledge remains unleveraged due to the use of local implementation teams. Instead of employing the experience of projects teams which have gone through the implementation process before, local implementation teams are going through the same learning curve with all the related and thus wasted expenses. Consequently, the foods executive implementation structure will most expectedly evolve in the coming years to a situation in which Process Implementation Teams will take care of both the development and implementation of a particular IT application. A Process Implementation Team will become responsible for all the IT systems with respect to one particular business process (see Figure 7.12) in a certain region. The Process Implementation Team will be located in a operating company to remain close to the users and be headed by a "Head of PIT" and a "Process Leader." "In this way," the information member argued, "we hope to become better able to take advantage of the experience and expertise gained in the implementation stage [... and] achieve a better integration and interconnectivity of the operating companies ."

THE MARKETING & DEVELOPMENT AREA

In the past, the philosophy of Unilever with respect to the innovation process in the marketing & development area was that innovation could come from anywhere and that successful innovation needed to be anchored in markets and in companies where the necessary partnership between Marketing and Development exists. Starting in 1991, however, Unilever began to change both the way it manages the innovation projects, as described in the former section, and the structure of the roles and responsibilities in the innovation process. The Personal Products Coordination undertook the first steps in this process in 1991 by communicating the decision that specific companies would be designated by the Personal Products Coordination to assume innovative leadership in particular core areas for their region. For each category of the Personal Products business a Regional Innovation Center was established. These centers' innovative work would be targeted on local market requirements but would also increasingly provide the major part of innovation to meet the regional needs of the Personal Products business. The selected companies would be expected to provide marketing, development, and other resources in the quantity and of the quality necessary to undertake this task.

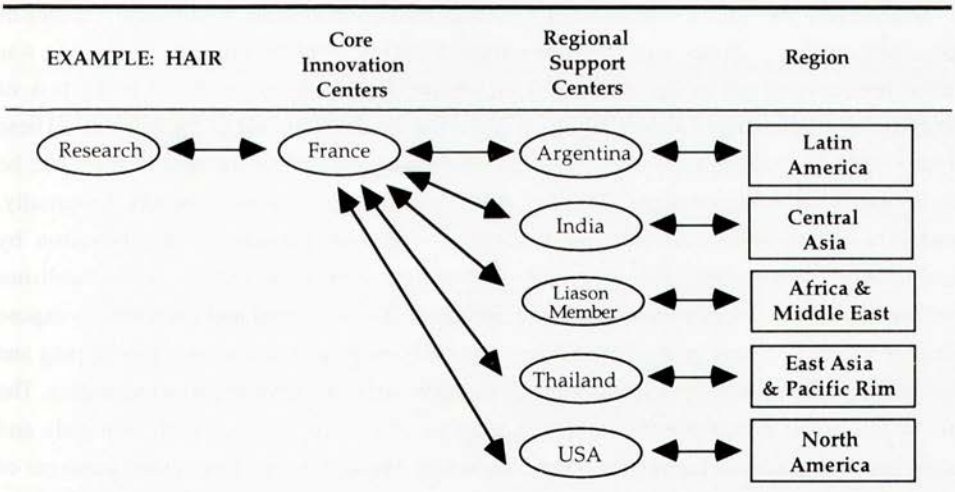
By grouping the best marketing and development staff in these leadership core areas and by integrating high-calibre international managers to grasp an international perspective to innovations, the aim was to generate less but better innovations in each category and to reduce the duplication of development work. Innovative leadership of this kind would not preclude other companies from innovating with known technologies but the Personal Products Coordination would expect the leader to identify opportunities and establish a center of Marketing and Development excellence. The marketing and development excellence should

enable the operating companies to innovate on a scale which would in fact meet not only their own local needs but, because of merit, the needs of other as well.

In this situation, the French company, for example, did not any longer spread its marketing and development resources over the three categories in which it had a significant market share in France (i.e., dental, deodorant, hair), but instead concentrated the development and marketing work on the category hair for which it got the Regional Innovation Center status. So, instead of spending one-third of the resources on each category, 80 % of development work under the new system was done on hair and only 10% on both dental and deodorant. For innovation and product development in the deodorant and dental business, the French became dependent on the Regional Innovation Center in respectively the UK and Italy.

The new system further evolved near the end of 1994. After three years of experience with the innovation centers it was decided by the Personal Products Coordination that there would be one Lead Innovation Center, called Core Innovation Center, in each of their core categories - Skin, Hair, Oral Care and Deodorant/Male fragrance. Instead of one Innovation Center for each region, one lead company was institutionalized to ensure the exploitation of innovations, both centrally and locally developed, in the marketing and development area on a global scale. The responsibility of the Core Innovation Center was the management of master brands within their category. Managing a master brand meant controlling and directing the projects in the innovation funnel, orchestrating of the contacts with research, and ensuring that there was sufficient activity on each of the master brands. The Core Innovation Centers were instructed to concentrate on so-called platform and breakthrough projects. The head of the Core Innovation Center reported directly to the Coordinator (head) of Unilever Personal Products on matters relating to the output of the Core Innovation Center.

In addition to the Core Innovation Centers, Regional Support Centers (RSCs) were



Adapted from Internal Documents.

Figure 7.13: The Hair Innovation Network.

established to accomplish the required adaptations or innovations for the category within their particular region. These Regional Support Centers had to become experts on the needs of their regions, to ensure that the regional needs were properly represented in the global plan for innovations in their category, and to coordinate the regional activities. To accomplish this, the Regional Support Centers had to engage in a two-way dialogue with the Innovation Centers and their own region. Moreover, the Regional Support Centers had to lead harmonization where appropriate to allow faster exploitation of innovations and to reduce costs. In regions not covered by the Core and Regional Support Centers, a regional liaison member was appointed to implement Personal Products' strategies. Figure 7.13 shows, as an example, how corporate management envisioned the Hair Innovation network and Figure 7.14 illustrates the role of the centers in various stages of the innovation funnel.

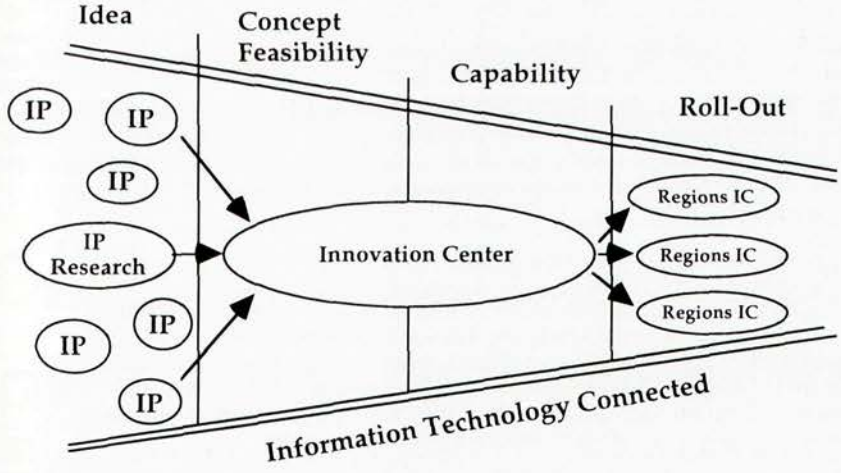
"Although early experiences with the new global system for managing innovation projects seemed to be promising," a senior development manager stressed, "concerns emerged with respect to the understanding and motivation of the non-IC companies. The new global structure was a dramatic break with the historical way of independent companies with a high degree of freedom in the marketing and development area. [...] In the past, companies were confronted with new innovations on the international management meetings, but they had the freedom to select and develop those innovations which they perceived as most suitable for their own local market." "In the new situation," a marketing manager of the French innovation center for Hair added, "we need to be careful not to create a situation in which the non-IC companies perceive themselves primarily as 'receivers of innovations.' We need these non-IC companies as a source of both the creative ideas and the development managers of the future. [...] The feeling by the non-IC companies to be in the 'Second Division' has to be taken away to make the institutionalization of innovation centers in the marketing and development area successful."

To motivate the non-IC companies to generate and communicate a sufficient number of ideas, the corporate center took another initiative during 1994 by implementing what was called Innovation Pads or Innopads. The idea underlying Innopads is that it is the task of everyone in all countries to contribute new ideas for the development of the business. These ideas should be made available easily to the whole business so that the best of them can be incorporated in the Regional and Global portfolio of Unilever Personal Products. Essentially, Innopads allows every company in Unilever to actively participate in innovation by establishing a process that will be common across categories and regions, and establishes guidance as to how ideas will be evaluated. Innopads is a structured and easy way to expose ideas. It is based on clear principles of doing very early rough and inexpensive prototyping and then getting quick consumer feedback through a variety of qualitative research techniques. The whole process is communicated and tied together via Lotus Notes. "With Innopads and additional tools like an Innovation Prize," a Senior Marketing and Operations manager of Personal Products Europe argued, "we hope to be able to counter the potential drawbacks from concentrating the development resources. By increasing the transparency and extending the

possibilities to contribute to the innovation process, we are trying to develop stronger and better exploited product innovations."

Apart from the generation of ideas and their subsequent development in powerful new product concepts, probably the most important step in the exploitation of the marketing and development activities of the Innovation Centers and Regional Support Centers is to reach for an agreement with the companies on the launch of product innovations. "To ensure that the product innovations are implemented locally with the backing of the required local resources," the Senior Marketing and Operations manager stated, "we of the Personal Product Coordination have developed and gradually implemented a well-elaborated planning process based on the 8 Quarters Activity Plan." The 8 Quarters Activity Plan depicts all strategic activities within the Personal Products companies and shows the various product introductions and major advertising campaigns for the next 8 quarters. The 8 Quarters Activity Plan is always one of the central topics during the annual operating planning cycle. Based on a proposal by corporate management, the companies give their comments on the feasibility of the activity planning for their country in the light of other local activities, manufacturing capacity, and top- and bottom-line expectations. "By committing the local companies to these plans," the Senior Marketing and Production manager explains, "we put pressure on the deployment of the work of the Innovation Centers and control the knowledge exploitation process."

After the prerequisite commitment is secured, the innovation needs to be dispersed over the companies. The Innovation Center is responsible to document progress with an understanding of the scope for harmonization and easy transfer, to explain the idea behind the innovation, and to convince local management of the importance of the innovation. The actual transfer of the



Adapted from Internal Documents.

Figure 7.14: From Idea Generation to Roll-Out of an Innovation.

The Ice Cream Organization of Unilever

The Ice Cream business of Unilever has gone through dramatic organizational changes during the past few years. Ice Cream is one of the seven "starred" categories because it is one of those categories which shows an ability to brand internationally which fits Unilever's long term strategy. The Ice Cream Group strives to market powerful brands, some local, but increasingly international, offering innovation, excellent quality and value.

Competition is now more intense. "It used to be," said a senior Marketing Member of Unilever ICG, "that you competed against small local companies. Various corporations, however, like Nestle and Mars are now acquiring a lot of ice-cream companies what makes the competition more and more a global battle between global operators. This means that you must get your efficiencies up and that you must be absolutely clear that you understand the consumer better than anyone else. Hence, we need to start to use our international strengths. Because it is an internationalizable business you can take all the learnings and bring them in. If it works, you can give it out back again on a consistent basis."

The Marketing Member goes on: "If you go back about ten years, there were a lot of autonomous little ice-cream companies. However, because Unilever recognized that Ice Cream is an area that can grow globally and because we had a few successes with just picking up good ideas and rolling them out across the world, the ICG has started to institutionalize that process rather more. So, we decided that we have to 'orchestrate' the transfer of successful ideas. Why going to 'reinvent the wheel' all over the place if you got something that works? It is cheaper and more efficient to roll that out than let everyone do its own individual things."

PHASE I

In the beginning of 1990, the ICG started to set up what was called International Brand Groups for a whole consumer area. This was the first step in the process of creating more integration. Although this international brand group was unempowered and didn't have full-time members working for the cause of this IBG, these seven people basically tried to do two things: (1) harmonize the brand which would enable production efficiencies to come; and (2) find out "Best Practice". The IBG reported to the Category Board which equally had very little power.

PHASE II

In 1994, the ICG moved the first phase on dramatically by actually pointing five international brand managers placed within four companies. In this stage the international brand managers really started to do work because resources were now available to drive things. Moreover, the international brand groups were redefined which meant much more focus.

PHASE II

In 1996, the ICG is transforming its structure further. There are now 4 Innovation Centers located in Italy, Germany,UK, and France. The innovation centers are responsible for the strategy development for a defined category/segment, brand development for the assigned international brands, research guidance, managing the international innovation process and coordinating and optimizing innovation and resources in the regional innovation centres and local companies.

Exhibit 7.9a: A Process Analysis of the ICG Organization.

What will Go	*What will Come*	*What will Stay*
Category Boards International Brand Groups International Marketing Group International Development Units Strategy Working Groups Research & Dev. Steering Group	Innovation Centres Regional Innovation Centres Core Groups Global Network Business Priority Group	International Brand Managers Ice Cream Conference Marketing Directors Meetings IFG Chairmen Meeting Ice Cream HR Group Close two-way contact ICG and Companies

In addition to the 4 innovation centers, two marketing & development centers exist in Europe for particular sub-areas and 5 Regional Innovation Centers (RIC) in the USA, Thailand, Turkey, Central Asia, and Latin America. The Regional Innovation Centers are responsible for the development of a regional strategy within the Global Framework, regional brand development, close cooperation with Innovation Centers, and awareness of regional needs (e.g., flavours).

In this integration process, the existing structures of operating companies are used. The international roles and responsibilities are clearly defined. There are fulltime international brand managers and Development Managers. The international brand manager is the international brand champion and is responsible for the management, development, and implementation of the brand strategy, globally, to meet the agreed long-term growth and profit development targets. The international development manager is responsible for all product and process development in support of the international brand. Both international brand and development managers have no local responsibilities or tasks.

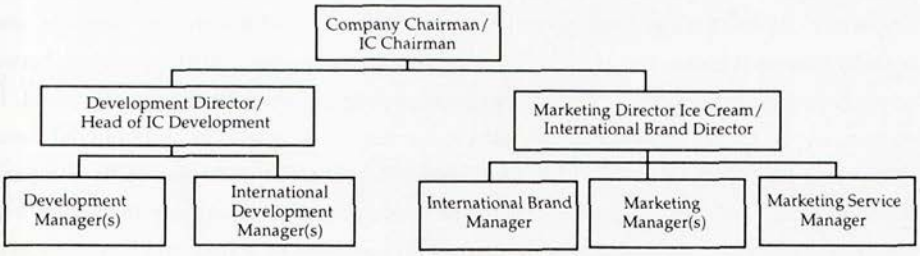


Exhibit 7.9b: A Process Analysis of the ICG Organization (Continued).

innovation, however, is the responsibility of the Personal Products Application Unit, a technical-oriented team located in the research laboratory in Colworth. The Personal Products Application Unit has to facilitate the rapid roll-out of new technology from the Innovation Centers to other Personal Products companies in accordance with priorities set by the Personal Products Coordination. The Personal Products Application Unit takes care of the distribution of the technical transfer packages, offers assistance in the adaptation of the innovation to the local circumstances, and provides information on best development practices. Moreover, where this can be shown to be the most cost effective way of supplementing or meeting their development needs, the Personal Products Application Unit gives development support to smaller companies on a worldwide basis. In general, however, companies should possess their own development resources wherever possible and are fully responsible for the adoption and integration of the innovation in local operations and marketing campaigns.

Concluding, we can state that the idea to concentrate development resources internationally in the marketing and development area is still controversial but widely shared and implemented throughout the Unilever organization (see Exhibit 7.9 for an elaboration on the particular way the concept has been worked out in the Ice Cream area of Unilever Foods). Although significant differences can be observed in the specifics of implementation, Unilever's top management has decided to introduce the "lead company" concept in all of their product groups. "The implementation of the Core and Regional Innovation Centers was not an easy task," the Senior Marketing and Operations manager of the Personal Products Coordination stressed, "but proved to be a powerful way to improve the exploitation of our innovation and development funds and personnel. [...] Although the organization of our innovation process will, most expectedly, further evolve over the following years, we learned how to cope successfully with the forces for integration and local adaptation during the last five years. [...] We have developed a system in which 'big' ideas get the attention they require to become globally or regionally exploitable."

7.6 SUMMARY & CONCLUSIONS

In this chapter, Unilever has been described from an intracorporate knowledge sharing perspective. Its knowledge environment, corporate strategy, administrative heritage, and a number of relevant management tools Unilever used in its approach to close the gap between the required and actual level of intracorporate knowledge sharing have been discussed. It is obvious that Unilever is going through turbulent times. In its quest for corporate advantage, success can no longer be built on the one-sided differentiation strategies of its companies. More and more, Unilever is forced to complement its traditional strengths in marketing with a reduction in sourcing and manufacturing costs, a higher speed of action, and entrepreneurship throughout its portfolio of businesses. The new competitive demands forces Unilever to synthesize its businesses more strongly, something for which the groundwork was laid by

Unilever's deliberate core business strategy in the late 1980s. This strategy aimed at reducing the firm's scope and increasing the international spread of its business activities. Only in this way could global competitiveness be achieved, while at the same time top management knew that the development of Unilever's capability to share information and know-how rapidly between companies on a global basis would be a prerequisite for the strategy's success.

The endeavour to increase the actual level of intracorporate knowledge sharing, however, has been considerably hindered and complicated by Unilever's background. For various decades, the Unilever organization has been represented by the company chairman who was single-handedly responsible for the profit of his business and who controlled almost everything what was going on in the company. A strong corporate philosophy had been established in which management of independent operating companies held a high degree of operating autonomy and this philosophy had created numerous obstructing barriers to possibilities of intracorporate knowledge sharing lower down the hierarchy. Through the adaptation of the firm's management structure and the implementation of various management tools, corporate management has been working on the integration of its businesses during the last five to ten years. The implemented management tools have affected, directly or indirectly, the process of intracorporate knowledge sharing, and five of them were described and analyzed to illustrate how intracorporate knowledge sharing is stimulated and facilitated in a practical setting.

In the remainder of this chapter, an attempt is made to illustrate the validity of the theoretical propositions presented in chapter four and chapter five. The argumentation starts off with an examination of the extent to which the management systems for managing intracorporate knowledge sharing have been shaped and given substance within the Unilever corporation. The registered management tools within the Unilever organization are confronted with the presented management tools of the knowledge sharing management systems in the theoretical part of this study. Such a step enables the formulation of tentative conclusions regarding the barriers still obstructing and hindering the intracorporate knowledge sharing process within the Unilever organization. The validity of these tentative conclusions has been checked by comparing them with the enumerated barriers by Unilever's front-line managers and the observed barriers in a review of five intracorporate knowledge sharing projects[4] within the confines of the Unilever organization.

PROPOSITION #1: KNOWLEDGE SHARING AWARENESS SYSTEM

Traditionally, the main part of Unilever's knowledge reservoir constitutes human-embodied knowledge. Unilever managers value the flexibility related to low levels of knowledge abstraction and therefore, although increasing recently, the degree of knowledge codification

---

[4] For reasons of strategic confidentiality, only two of the five investigated intracorporate knowledge sharing projects could be briefly described (see Box 7.11 and Box 7.12).

and registration overall is relatively low. In their search for knowledge donors of particular knowledge items throughout the organization, Unilever managers tend to use their informal relationships. The informality in the Unilever corporation, which is deliberately created by regular international management meetings, management courses, expatriation programmes, and a large variety of workshops and seminars, comprises powerful information relationships which are highly valued by those managers having a place in this informal network. Although often time consuming, the informal network is quite effective in linking those with a knowledge need with the most appropriate knowledge donor. Moreover, by exploiting the informal network Unilever managers often allow others to shape a particular decision before embarking upon it.

Unilever's informal network and management structure brings people with a "high-level" conception of their company or business together and this led to the fact that generic ideas are widely shared and distributed over the Unilever network. This is strongly in contrast with the situation lower down the hierarchy. The knowledge which is procured, developed, and owned at these levels too often remains unexploited. The major part of the employees are not or less involved in the international management meetings and management development programs of Unilever and hence lack a position in the informal network which could link them with colleagues who are confronted with related or the same problems. It is at this level, however, where most of the solutions for the day-to-day problems concerning organizational processes are developed and, most expectedly, where most of the knowledge interesting from a intracorporate knowledge sharing perspective resides.

Linking managers throughout the world by creating a Global Network (UNISON), seems a possible and interesting way to improve this situation. Besides making information accessible

THEORETICAL PART	**KNOWLEDGE SHARING AWARENESS SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Knowledge Codification, Registering, and Storage Networking Assigning Knowledge Exploration Responsibilities Institutionalizing Knowledge Sharing Intermediaries Implementing Internal Benchmarking Procedures	THEORETICAL PART
EMPIRICAL PART	UNILEVER'S MANAGEMENT TOOLS - Informal Network - Liaison Members (category members, process leaders, etc.) - Information Centers (Application Units, the Ice Cream Information Center, etc.) - Lotus Notes Conferences - Workshops/Seminars/Task Forces - Registration of Best Practice (brand manuals, benchmarks, etc.)	UNILEVER: REMAINING AWARENESS BARRIERS (1) Employees lower down the hierarchy are not part of the "informality" and hence have problems in finding their way to knowledge donors or knowledge recipients within Unilever. (2) Unilever managers value the flexibility related with low levels of knowledge abstraction. Although knowledge items are more and more codified and registered, the degree of knowledge abstraction is overall still very low.	EMPIRICAL PART

Table 7.5: The Knowledge Sharing Awareness System.

to all Unilever employees, electronic storage of information could create a knowledge "push," meaning that by scanning easily accessible and well organized "libraries," managers can become aware of business solutions for issues which have not been identified yet. Until the beginning of 1996, however, the access rate of existing Lotus Notes conferences is still disappointing. Apart from the need for computer literate employees, the usage of electronically stored information can be increased by initiatives as improvement of the organization of information, the creation of advanced search engines and information filters, and the integration of a mechanism into the system. These will alert a manager if information is added to the conferences and this is of particular importance for their work. Not the quantity, but the quality of the database must be the focal point in the Unilever's effort to stimulate front-line managers in effectuating their search for knowledge in an electronic way.

Apart from contacting colleagues directly, numerous liaisons (e.g., category members, process leaders, brand leaders) exist to assist the knowledge donor and recipient in finding each other. On the one hand, the liaison member links Unilever managers around the world based on their requests for particular knowledge. An overall view on the area of responsibility makes the liaison member capable of bringing managers together who share the same problems or guiding managers with a knowledge need to the best practice within Unilever. On the other hand, liaison members increasingly effectuate assessments (e.g., benchmark studies) to register the best practice and identify knowledge gaps in the Unilever companies. On the basis of these assessments, the liaison member can, on his or her own initiative, bring managers together who can exchange knowledge and exploit the best practice. A growing process orientation helps to identify the non-category aligned opportunities for sharing the available knowledge within Unilever.

Finally, Unilever has strongly improved the awareness of where knowledge resides by concentrating innovation and development resources in so-called innovation centers, lead companies, and competence centers. Although the institutionalization of the knowledge development and intermediation centers is a very complex process, the concentration of development funds and personnel is an effective way to inform employees on the location of the required systems, skills, and know-how. It provides employees with a stable point of reference for particular issues and hence reduces the complexity of the search process for the most suitable knowledge donor.

Concluding, it can be stated that many management tools of a knowledge sharing awareness system have been discerned within the confines of the Unilever organization. These management tools assist front-line managers in their search for existing knowledge items throughout the organization. As a consequence of these implemented management tools, many of the awareness barriers have been reduced or taken away. One remaining barrier, however, is the low degree of knowledge abstraction. The major part of Unilever's knowledge base is still human-embodied and hence difficult to identify. Another awareness barriers is caused by the fact that the informal network only interconnects a selective group of top managers within Unilever (± top 2,000) and tools are lacking or are not implemented yet to improve upon this

A Successful Example of a Knowledge Sharing Effort

In 1995, Unilever Personal Products launched Organics, a "health" shampoo based on the strengthening and revitalizing properties of its special additive, Glucasil. This Glucasil, as the advertisement brochures claim, is a key nutrient which plays an important role in everyday health and beauty of hair and nourishes the roots of your hair. The range includes 13 shampoos, everyday and intensive conditioners, 2-in-1s and a strengthening serum. The international roll-out of the Organics shampoo proved that strong, global brands could be developed and could lead to major successes. Within five months after its launch, Organics was one of the leading brands in most European countries. "Thanks to Organics," the Marketing Manager of the Inovation Center Hair in Paris, argued, "we could prove that we were able to develop and transfer global ideas, take lessons of launches for next times, and roll-out a product innovation very, very quickly."

The idea for the development of a new "health" shampoo orginates from the early 1990s. In those years, Unilever Personal Products' management was frustrated by the lack of innovativeness in Personal Products. The 1980s had shown a dramatic growth of the Personal Products Group, but this growth was realized by a global spread of activities in the early 1980s and major acquisitions in the late 1980s. A lot of small activities were going on (more than 600 projects), but real innovations were not realized. Corporate management perceived the need for a strong, global hair product.

The Personal Products Coordination decided to send a brief to the four big European countries (e.g., France, Italy, Germany, UK) and the company in the US, to come up with a proposal for a new hair brand in the beginning of 1991. One of the proposals, the Organics concept as developed by the French company, came out of the tests as an interesting idea, but one which would require further study and development before a significant market share could be guarenteed. Consequently, the French company, just assigned the Innovation Centre status in 1992, continued the development of the Organics concept. The harmonization process of the European portfolio, however, took away a lot of time and resources and hence the launch of the Organics concept in Europe seemed still far away.

During a meeting with the other Innovation Centers, however, the new product idea and the test results were shared with the other regions. What happened was that the Innovation Center from Asia (Thailand) saw the idea and test results in Europe and immediately recognized, based on their business judgement, that it was an important new idea. The Innovation Center in Thailand continued the work on the Organics concept to introduce it as quickly as possible in its region. In 1992, however, brand managers were thinking in Thailand not of the introduction of a new brand, but of a variant of existing brands. Although the technical principle was the same and the Thai did an excellent development job, they took something coming from the original Organics concept and interpreted and worked the concept out in a totally different way.

Confronted with the intention of the Thai to use the Organics concept for a new variant of an existing brand in Thailand, the Personal Product Coordination took an important decision which gave a clear signal to the whole Personal Products group. PPC saw that the people in Thailand tried to launch a variant while they also saw the Organics concept as a potential big idea. A product idea which had the potential, if developed appropriately, to become the new big, global hair brand they were waiting for. So, PPC ordered the Thai IC to stop doing their local "small" thing. If the Thai wanted to exploit this new idea they had to do it "Big" or, at least, test it also as a big new brand instead of a variant. PPC forced the Thai IC to think global instead of local and to develop a strong new brand.

Exhibit 7.10: The Sharing of Knowledge with respect to the Organics Shampoo.

(Continued)

This message from the top was very important.The Personal Products Coordination believed there was something that was more interesting than the local variant of an existing brand. They argued that the Thai had to prove that they were not messing up a global idea. Athough Europe was not ready to launch and had other priorities at that time, the head of PPC still forced the Thai to work the product concept out as a Global Brand. He gave the concept a chance to become a Core Global Brand. It was the first time in Personal Products that a single idea was recognized as a potential global idea, and the other ICs were asked to contribute to the thinking and development work to make it a "Big" idea.

After the Thai tested the Organics concept as a new brand and its launch proved to be a tremendous success, the brand was adapted to the European market by the Innovation Center and prepared for its launch in the UK, Ireland, and Norway in 1994. Although the marketing mix remained almost the same and no changes were made to the core technology, the advertisement campaign and the formula were adjusted to European requirements.

The success of the UK launch and the market share gained in Norway and Ireland convinced PPC that the launch of Organics in Europe needed to be a priority for the operating plans of 1995 and hence included the launch of the Organics brand in the 8 Quarters Activity Model of most companies in Europe. "The main task of our managers in the Innovation Centers," the marketing manager of the hair innovation centre urged, "is to convince the country managers of the new product concept. Convincing the companies of the importance of the new concept is important not directly for the decision to launch the new product because that is often a decision of PPE with the companies, but more a matter of convincing them to provide the needed resources and the right skills to make it work in their country. You need to give them evidence. Of course, the results in the other countries helped us strongly in this task."

"After the adoption decision has been made and the Launch Plan formulated, the marketing manager continued, "the Innovation Center had an important role in making the marketing managers really understand the Product Mix and Communication Package of the Organics brand. We have organized workshops and kick-off meetings and provided the companies with a Organics package which included Claim Support and instructions for the communication strategy. [...] Moreover, lessons are transfered from previous launches. The sampling strategy which was used in the UK, for example, was very successful and hence exploited during the Organics launch in the other European countries."

The roll-out of Organics in Europe (except for Italy) took approximately five months. Such a fast roll-out has never been realized before within Personal Products and added strongly to the exploitation of the product innovation in Europe. The Organics brand has proved to be a successful conjunction of technological and marketing knowledge which was exploited efficiently and effectively on a European scale.

Improvements with respect to the roll-out of product innovations, however, remain feasible. Primarily the inflexibility of the whole system to react to particular problems or demands in each country was seen as one of the main drawbacks by local marketing managers. Procter & Gamble, for example, had been able to pre-empt the core message of the Organics Mix, namely "nourishing the roots of your hair," for more than four months in many countries. Before Unilever was able to roll-out the Organics brand in the rest of Europe, P&G had adapted its promotion campaign of an existing brand (i.e., Panthene ProV) to claim the same influence on the roots of hair. The inability of local brand managers to adapt the introduction package and respond appropriately to the changing circumstances in local markets affected, some marketing managers argued, the success of the launch significantly.

Exhibit 7.10: The Sharing of Knowledge with respect to the Organics Shampoo.

situation. Consequently, the knowledge which resides lower down the hierarchy is still unexploited in many cases.

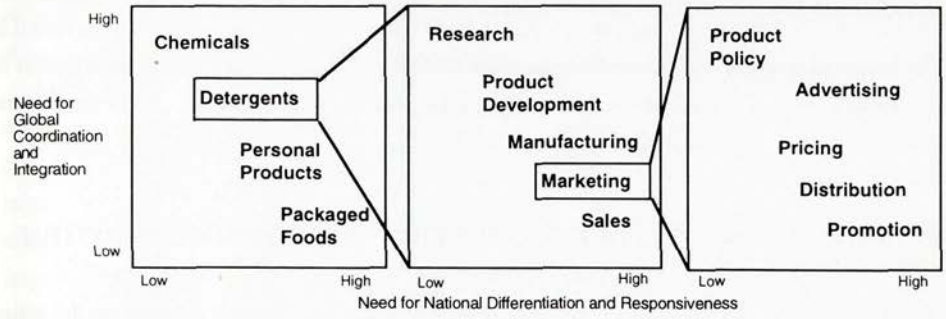
PROPOSITION #2: KNOWLEDGE SHARING PERSUASION SYSTEM

In general, most Unilever managers have signalled a growing pressure on corporate management to increase the level of intracorporate knowledge sharing. Formal statements of Unilever's top management, compulsory policies, and the implementation of various management tools have made clear that corporate management is more than serious about increasing the actual level of intracorporate knowledge sharing. The strongest pressure to participate in the exchange of available knowledge, however, is caused by a tool which has been developed over various decades, namely the corporate culture. The corporate culture instils in the firm's employees a shared responsibility for the well-being of the corporation at large. Refusing to participate in intracorporate knowledge sharing projects can have the repercussion of becoming socially excluded and hence losing the powerful information relationships with colleagues throughout Unilever. As a consequence, intracorporate knowledge sharing is seen by many managers as an investment in long-term relationships with their "peers" internally.

Apart from the corporate culture, many other management tools of a knowledge sharing persuasion system can be discerned within Unilever. Although the right balance is not found

THEORETICAL PART	**KNOWLEDGE SHARING PERSUASION SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share
EMPIRICAL PART	UNILEVER'S MANAGEMENT TOOLS - Management of Dispersed Innovation Projects (e.g., Innovation Funnel, Consumer/ Technology Matrix) - Concentration of Development Resources (e.g., Innovation Centers, Centers of Excellence) - Benchmark studies and other kind of assessments have increased the pressure of the - Coordinations and liaison members to share "Best Practices" - Statements of Top Managers in favour of intracorporate knowledge sharing - Strong corporate culture putting a pressure on employees to participate in intracorporate knowledge sharing projects	UNILEVER: REMAINING INTEREST BARRIERS (1) Intracorporate knowledge sharing is not rewarded explicitly and the general feeling is still that the *inventors are the "heroes" within Unilever not the* exploiters. This led to the situation in which the hindering force in the knowledge transfer is primarily situated at the receiving side (Not-Invented-Here) and not at the "owners" end. (2) The lack of strong central decision making has hindered the exploitation of knowledge development activities significantly in the past. Adoption decisions were and could not be enforced.

Table 7.6: The Knowledge Sharing Persuasion System.



Adapted from Bartlett and Ghosal (1989)

Figure 7.15: Integration and Differentiation Needs at Unilever.

yet in each area of the Unilever group, the increased process orientation, the management of dispersed innovation projects, and the growing concentration of knowledge development resources are all contributing to a reduction of the interest barriers to intracorporate knowledge sharing. Unilever experiences more and more that the establishment of institutions which have the power to formulate compulsory or mandatory policies with respect to knowledge exploration and knowledge exploitation is critical for success (see Exhibit 7.10 and Exhibit 7.11). The organizational changes in Unilever's top-structure will probably create more transparency in the distribution of responsibilities and empower the Center and numerous Extended Centers to enforce adoption decisions and give more direction to the knowledge exploration and exploitation activities throughout the organization. It remains important to acknowledge, however, that each product, functional, and geographical area has its own particular demands for integration and differentiation (see Figure 7.15). As shown in the case on the Organics Launch (see Exhibit 7.10), it can be necessary to coordinate product development on a regional or global level and, simultaneously, grant front-line managers more operating leeway in the advertisement and promotion area to enable them to respond quickly and effectively to particular events or circumstances in the local market.

Notwithstanding these numerous management tools related to a knowledge sharing persuasion system, many managers still perceive various factors reducing the willingness to actively look for intracorporate knowledge sharing opportunities. For example, the feeling that inventors are still seen as the "heroes" within Unilever compared to the more inferior role of the exploiters, creates a focus on realizing innovations which are better than the available solutions. Unilever managers are sometimes more concerned with proving that they are better than their "internal competitors" in their functional area than with achieving the best solution for the company from a business point of view. As a consequence, the knowledge owners are, in general, glad to share their knowledge, while a large part of the resistance to share knowledge is located at the receiving end. Another conclusion which can be drawn is that turnkey operations are still rare, often the result of the perception that local circumstances require fully adapted business solutions. Recipients tend to investment in the improvement of

an adopted knowledge item instead of just applying it in the way the donor provided it. The firm as a whole, however, could become more knowledgeable if the local resources invested in knowledge adaptation and customization were reallocated and invested in the exploration of unexplored areas. Finally, resistance to share knowledge exists because Unilever has no explicit rewards for giving and taking knowledge.

PROPOSITION #3: KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM

After a knowledge sharing project has been initiated, several factors can complicate the actual transfer of knowledge. Without doubt, Unilever's main complexity barrier is the administrative diversity inherited from the management philosophy built around independent operating companies. Differences in applied systems, applications, and data architectures hinder the effective and efficient transfer and deployment of knowledge items. Apart from the complexity of the transfer, the existing or perceived diversity enforces the knowledge recipient to effectuate often expensive changes to the acquired solution in order to customize it to the particular circumstances of a company. Notwithstanding major investments in several harmonization and standardization efforts, companies still (perceive to) differ in several

THEORETICAL PART	**KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing*	RELATED MANAGEMENT TOOLS Knowledge Abstraction & Codification Increasing User Involvement & Triability Establishing a Corporate-Wide Language Arranging Regular Management Meetings Dominant Corporate Culture Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share
EMPIRICAL PART	UNILEVER'S MANAGEMENT TOOLS - Creation of a common "language" by defining common definitions of data-elements and information structures - System and Process Harmonization - Knowledge abstraction (e.g.,technical manuals, brnnd manuals, visibility manuals, category manuals, category business models) - Personnel policy ("creating the international manager") - Corporate training programs and product or category-related management courses - Regular international management meetings - Corporate Culture creating a strong corporate identity and some communality in values and norms	UNILEVER: REMAINING COMPLEXITY BARRIERS (1) Although knowledge items are more and more codified and registered, the main part of Unilever's knowledge base is still human-embodied. The tacitness and equivocality of human-embodied knowledge is higher and hence more difficult to transfer. (2) Existing and perceived diversity between the companies inherited from the philosophy of management built around independent operating companies complicates intracorporate knowledge sharing projects significantly. (3) Language problems and cultural distance still complicate many intracorporate knowledge sharing projects. (4) The lack of explicit rewards reduces the motivation of the knowledge donors.

Table 7.7: The Knowledge Sharing Complexity Reduction System.

aspects of their business. Two other factors which significantly complicate and hinder the effectuation of intracorporate knowledge sharing projects are the low degree of knowledge abstraction and the lack of tangible rewards and incentives for the knowledge donor.

At the moment, however, that Unilever achieves a situation in which it learns to manage the existing diversity and to exploit possible synergies from the point where consumer and company needs are the same, facilitating conditions are in place for the effectuation of intracorporate knowledge sharing projects (see Table 7.7). For example, Unilever's perspective not to create a separate cadre of international managers, but instead to develop managers to be international has culminated into a strong Unilever culture characterized by a high level of trust between its managers. Although Unilever has always adhered to a so-called "ization" (if the required capabilities exist, local management is appointed on the management positions in the local companies), a strong informal network exist between Unilever managers. By appointing local management to lead Unilever companies abroad, the increased complexity is deliberately accepted to improve adaptation to the local market. Intensive training and socialization programs facilitate the communication between Unilever managers and give them the feeling that they belong to the "Unilever Club."

PROPOSITION #4: KNOWLEDGE SHARING MEDIA SYSTEM

Historically, one of the important ways to transfer skills and experience in a certain area has always been the expatriation of management. The movement of managers among management groups is an important aspect of Unilever's culture. Category-specific skills and resources were made available at the right time to meet planned growth in certain geographic areas. Moreover, management expatriation has been an important part of management development programs and has led to international-oriented and strongly networked management resources. This position, however, is no longer tenable because of the costs of expatriation, the problems of repatriating managers to their home country, and the need for localisation. As a consequence, Unilever is critically reviewing its expatriation policy. Unilever must become more business-needs driven in its approach towards expatriation by using other ways to internationalize its management (e.g., being an international team member, managing an international brand, international responsibilities such as sourcing, buying). So, if Unilever decides to bring back the re-deployment of human-embodied knowledge by the expatriation of its managers, knowledge should be transferred more and more in a disembodied form and hence should be extracted from the knowledge donor and codified to enable its transfer to the knowledge recipient.

The role of the corporate center in effectuating the transfer of knowledge within Unilever has changed. In the past, knowledge travelled in most cases first through the center before the it was sent out again to the appropriate companies. At this moment, however, this is an impossible task because the center lacks the resources and capabilities to manage such a process any longer. Although the liaison members still play a significant role in bringing

A Less Successful Example of a Knowledge Sharing Effort

In the late 1980s it became prevalent that a very resource-intensive investment needed to be made in upgrading the production system of most of the European Foods companies of Unilever. In this respect, the Computer Integrated Manufacturing concept was perceived as one of the most promising lines of thinking by both operating and corporate management. It seemed logical to unite internal strengths and exploit a CIM solution which could be exploited on a European or Global scale. In reality, however, the knowledge leverage practices with respect to the CIM framework would become one of the less successful examples on how to manage intracorporate knowledge sharing caused by the lack of clear compulsory policies and a blurred decision-making process.

The key element of the Computer Integrated Manufacturing framework is the power of the computer to act as as an "omniscient observer" of a production system, capturing information about every possible event that affects process outcomes. Applying CIM to its full extent can result in a highly automated factory, where the role of labor is largely restricted to computer programming, engineering support, and maintenance of robotic machinery. Athough the factors which firms need to consider in making CIM decisions are very broad and complex, the CIM framework seemed a very interesting investment option for a large manufacturer in the foods business. The amounts at stake in CIM decisions, however, can be large - bilions of dollars for a company as Unilever. Consequently, it seemed a sensible decision from the Foods Executive Information Committee to assign the "Lead Company" status in this respect to two of its companies, Van den Bergh en Jurgens in Rotterdam and UVGN in Oss, both in the Netherlands.

A Lead Company invests heavily and focuses its exploration activities in the direction agreed with headquarters. The Lead Company has to pioneer the area for which it got the additional responsibilities. Both Lead Companies for the CIM framework were obliged to implement all the prescribed software modules, create facilities for demonstration to the other companies, communicate to the Foods Executive the key demands for implementing the CIM framework, replace or improve the software modules, and provide input for the preparation of standardized guidelines for implementation of the CIM framework (Smeulders and Van Tulder, 1995).

"A Lead Company status provides you with the leeway to invest and offers opportunities to get assistance from the functional specialists of the Center," the technical director of Van den Bergh en Jurgens reflected on his reasons for acquiring the Lead Company status for the CIM framework in the early 1990s. "The danger of being a Lead Company, however," the technical director proceeded, "is that you invest heavily in a certain direction while the returns are often very uncertain. [...] The Lead Company status is given to explore a new area which is unknown for the Unilever corporation and hence it is possible that you develop and invest in a system which proves in the end not to be the most suitable system for your company." In October 1994, however, Van den Bergh en Jurgens was the first "sourcing unit" of the Food Management Group having the Computer Integrated Manufacturing system fully operational. A learning process of more than ten years has taken place within this company. A large knowledge reservoir was created which was ready to be exploited by the other units.

"The Van den Bergh en Jurgens company has taken its full responsibility by inviting people from other companies, presenting the results on Unilever seminars and workshops, and creating a video tape on which the changes and operations were shown," the technical director emphasizes its attempts to transfer his knowledge to other companies. "In reality, however, colleagues visit our plant regularly and probably collect ideas on possible improvements and pitfalls which they have to circumvent.

Exhibit 7.11: Sharing the Computer Integrated Manufacturing Framework.

(Continued)

Very rarely, however, other companies asked for the systems which we have developed, assistance from our experts, or our detailed documentation on the organization and operation of our production processes. [...] Although we could implement the same system now in half the time and against one-tenth of the costs in the case of a turnkey operation, Unilever managers often take small elements of the whole system with them and develop and implement a unique production system in their own company."

"This lack of interest in the available knowledge in the lead company," the technical director further explains, "is partly the result of differences between the operations and organization of the companies but mostly the outcome of less rational motives. First, within the margarine category of Unilever we are confronted with a structural overcapacity in Europe. Although we know for many years now that a few of our companies need to be closed, corporate management has not made or communicated a decision on which companies will be shut down. [...] Acknowledging the expertise available in other units can position your own company in a less favourable position."

"A second less rational reason for the lack of intracorporate knowledge sharing," the technical director continued, "is the lack of entrepreneurs within the Unilever companies who acknowledge the opportunity and advantages of adopting knowledge from other Unilever companies.[...] We promote and reward those people within Unilever who distinguish themselves within their functional area by generating new, very intellectual ideas and concepts. We don't admire as much those who apply the knowledge. [...] If you really understand and value the essentials of your business and acknowledge that only the consumer in the marketplace will eventually decide over the success of your company, you will be willing to 'steal' as much as possible from others to improve this situation. [...] We must not try to solve the same problem more brilliantly and intellectually than our colleagues, we can better try to solve all the other problems which we still have to solve and apply the existing knowledge as much as possible to serve our consumers."

"The most important reason for the lack of exchange and transfer of knowledge with respect to the CIM framework, however," the technical director stressed, "was probably the role and confusion created by Unilever's headquarters. The process of defining a compulsory policy on the CIM framework was very obscure and took almost a decade. [...] Moreover, various parties within the headquarters of Unilever were communicating conflicting directives. In the end, when the Foods Executive came with a policy statement in the beginning of 1990, the food companies were forced to implement the CIM framework before the end of 1994 while the time you need for full implementation is 2 to 3 years."

The knowledge activities surrounding the CIM framework were chosen as a less successful example of an intracorporate knowledge sharing project because some typical barriers were prevalent in this situation which caused the fact that major opportunities for corporate value creation remained unexploited.

The final situation in this particular case was that most of the 52 companies of Unilever foods in Europe were going through the same learning curve for implementing the CIM framework at the same moment and did not exploit the opportunities to share. This case makes perfectly clear the importance of transparency in the decision making process surrounding innovation projects. If Unilever's top management had mandated a particular systems early on, the Lead Companies could have taken the lead in investigating the main issues related to the implementation of a CIM framework and transfer their knowledge in a systematic way to the other operating companies.

Exhibit 7.11: Sharing the Computer Integrated Manufacturing Framework.

employees together for knowledge sharing purposes, Unilever increasingly stimulates the operating companies to communicate directly with their colleagues in other companies. As one manager stated: "Historically, the headquarters has been like a 'railway junction' with knowledge coming in and coming out. Now the center is more a 'signal box' attempting to route the knowledge from one place to another without the knowledge necessarily coming through the center." In general, however, managers in the center still tempt to be copied on knowledge transfers efforts between companies. In this way they remain informed about the problems they are dealing with and the kind of knowledge transferred. More and more, however, transfer mechanisms are needed to facilitate the decentralized transfer of knowledge between the companies.

Unison is one of the systems which could facilitate these decentralized transfers of knowledge between the companies. The aim of UNISON was the facilitation of access to all people, information, and knowledge throughout the Unilever world. A system was built around a network of desk-top computers linking managers both with each other and with remote databases. The Unilever culture, however, with its very broad network of contacts, often one-to-one, sometimes one-to-few, had strong implications for the successful implementation of advanced communication technologies like E-mail, Lotus Notes, and video conferencing. Members of the Unilever group feel comfortable with sharing on an one-to-one basis and with persons they know. The wide network of relationships, built up during a tradition of expatriation, international workshops and training courses, is, as stated by many interviewees, the foundation on which knowledge transfer projects throughout Unilever are initiated in most cases. Consequently, the telephone, electronic mail, and desk top computing closely fit the

THEORETICAL PART	**KNOWLEDGE SHARING MEDIA SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation*	RELATED MANAGEMENT TOOLS Knowledge Transfer Skill Development Advanced Communication Technologies Expatriation Strategy	THEORETICAL PART
EMPIRICAL PART	UNILEVER'S MANAGEMENT TOOLS - Although plans exist to reduce the number of expatriates, traditionally Unilever makes intensive use of expatriates to transfer knowledge. - Set of commnication channels is extended by adding electronic media (e.g., e-mail, Lotus Notes, desk-top computing, video-conferencing). - Unilever invests in the creation of the international manager who needs to possess strong intercultural skills	UNILEVER: REMAINING MEDIA BARRIERS (1) No particular management courses exist to develop skills for transferring and receiving knowledge from internal colleagues. (2) Although many investments are done in the implementation of a Global "electronic" network, an "electronic" sharing community does not exist yet. Personal, ad hoc contact is still the main way through which knowledge is exchanged throughout the Unilever organization	EMPIRICAL PART

Table 7.8: The Knowledge Sharing Media System.

Unilever culture. Information retrieval through Lotus Notes, however, to share information, ideas, and concepts on a one-to-many basis is still disappointing. Apart from the misfit with the Unilever culture, Unilever managers have problems in finding their way through the enormous amount of information which is available within the Lotus Notes databases. Although the use of Lotus Notes is growing and is often perceived as a valuable additive to the set of communication channels, the rate with which it is growing is disappointing.

So although Unilever has built an electronic infrastructure which enables intracorporate knowledge sharing, Unilever does not have an electronic sharing community yet. The set of communication channels has significantly increased over the past few years, but the major way of transferring knowledge is still personal ad hoc contact. This means that, on average, Unilever manages the complexity of its intracorporate knowledge sharing projects inefficiently. Personal ad hoc contact is a rich transfer medium which is very time consuming. Many intracorporate knowledge sharing projects could be more efficiently managed with a less rich transfer medium.

Concluding, we can state that today Unilever is a company that has established an organizational context which enables stimulation and facilitation of intracorporate knowledge sharing. Although barriers still exist and hinder the intracorporate knowledge sharing process within the confines of the Unilever organization, over the years Unilever's top management has authorized the implementation of numerous management tools that have reduced various of the prevailing awareness, interest, complexity, and media barriers. Notwithstanding these significant investments to foster the transfer and exploitation of valuable knowledge items, Unilever's actual total value created by intracorporate knowledge sharing is still relatively low due to the particular obstructing influence of barriers to initiation. Complexity and media barriers are still prevalent but could be overcome by using numerous facilitating conditions if only more knowledge donors and recipients would agree on their involvement in a knowledge transfer endeavour. Unilever's top management should aim at finding the balance between its task to stimulate and its task to facilitate instead of concentrating on one of these responsibilities. Top management should pay equal attention to barriers to initiate and effectuate intracorporate knowledge sharing efforts. If one exaggerates the attention for one of these tasks without weighty attention for the other, the end results and returns on investments will be suboptimal.

8

Canon Europe NV

Beyond Leveraging Technological Excellence toward a Cross Fertilization with Market Knowledge

"In the past our competence in the research and development area dominated our product strategy. A strategy that perfectly matched the requirements of the high-tech industry in those years. In the future, however, we will be increasingly forced to adapt our products to the particular demands in our markets. The consumer asks for customized products and hence collecting and processing market-information is becoming more and more important for Canon Europe."

- Masahiro Tanaka - President and General Manager Canon Europe NV.

8.1 INTRODUCTION

Canon Inc. is often mentioned as a corporation with unique strengths in the leverage and upgrading of its corporate resources (Ghoshal and Ackenhusen, 1992; Goold, Campbell, and Alexander, 1995). On the basis of a corporate portfolio of strongly related businesses and expensive, but focused research and development programs, Canon would add corporate value to its businesses by exploiting its technological knowledge on a global scale. Shared resources in core technologies would allow all of Canon's businesses to benefit from relevant expertise that they could not afford individually. "Canon's many innovative products which enables the company to grow quickly in the seventies and eighties," Ghoshal and Ackenhusen (1992: 698) stated, "are in large part the result of a carefully orchestrated use of technology and the capacity for managing rapid technological change." A competence which provided Canon with the means to be market leader in many of the high-tech industries in which this firm operates (e.g., cameras, copiers, and mask aligners). Considering Pucik's (1991) statement that many Japanese firms have developed a systematic approach to organizational learning which involves more than an explicit rejection of the parochial "not-invented-here" syndrome and which is centered on the value of invisible assets, the study of Canon's knowledge sharing activities in Europe proved to be highly interesting.

The experiences, perceptions, and visions of Canon's employees in Europe regarding their organizational ability to share knowledge, explicated during the various interviews throughout this firm, were very important, informing, and inspiring for this research project. These images were much more ambiguous, however, than one could infer from former publications on the Canon organization[1] (e.g., Ghoshal and Ackenhusen, 1992; Goold, Campbell, and Alexander, 1995). From a financial perspective, Canon Inc. is still performing well. Canon's top and middle management, however, are quite hesitant to attribute this to the facilitating role of the parent to "create linkages and cross-fertilization between different areas of technology, between technologists and market needs, and between different markets," as argued by Goold, Campbell, and Alexander (1995: 26). "Canon still reaps the benefits from the successful strategy in the seventies and eighties to optimize and enhance existing product concepts," as stated by one manager. "Like many other Japanese companies, Canon did not invent or develop new product concepts but produced existing ones efficiently and enhanced them successfully." A well orchestrated export strategy and a successful Original Equipment Manufacturing (OEM)[2] business stimulates and facilitates the exploitation of Canon's highly advanced and product-embodied expertise on a global scale.

Canon managers perceive intracorporate knowledge sharing as one of the critical business processes for the coming years but also as a problematic activity within the firm due to Canon's traditional difficulties in cross-fertilization. First of all, Canon appears to be weak in reaping cross-divisional synergies. Particularly in a time in which many of Canon's industries are converging and consumers are demanding integrated solutions (e.g., office equipment), barriers to transcend divisional boundaries are becoming an ever-more serious problem which deserves serious management attention. Second, many of the Canon products, especially BJ printers, cameras and copiers, serve mature markets (see Figure 8.1). Canon needs products that will carry them into the future, and considerations in developing these new products require a consciousness with respect to consumer demands. As one of the key managers argued, "... instead of focusing on our own ability to develop and produce, Canon must become more eager on collecting information and becoming knowledgeable on the needs of the

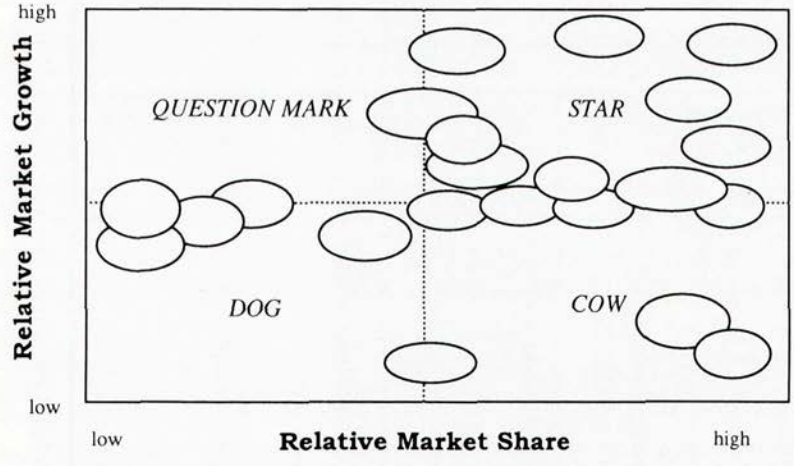
---

1 Notwithstanding differences in the number and set of interviewees, one could place serious doubts to the way in which some management researchers write the specifics of their cases as based upon the "facts" in practical settings. When Ghoshal & Ackenhusen (1992), for example, present the GINGA system as "information technology to integrate its world-wide operations" (704), it would have been more valuable if they had described not only what Canon wanted to develop but also what actually came to be developed. The researcher asked eight managers in Europe about their experiences with the GINGA system. Only one manager responsible for international information technology and telecommunications applications was able to tell the researcher that GINGA is a simple corporate telephone line, implemented to cut telephone expenses but having less capacity than a regular one. The other seven interviewees had never heard from the GINGA system and used public telephone lines for their internal calls.

2 Original Equipment Manufacturing (OEM) business means that Canon's patented know-how is sold to third parties. These third parties take care of the commercialization of the patented technologies in the marketplace.

customers and how these will be like in the future." The current Canon organization is not capable yet to achieve the necessary cross-fertilization between market and technological knowledge effectively and efficiently, particularly outside Japan. Dramatic organizational change seems to be necessary to consolidate or expand Canon's market position in "overseas" regions in the next millennium.

The case study of Canon in Europe focuses primarily on the second issue. Instead of relying on a one-sided emphasis on the firm's technological strengths, Canon has to acknowledge the need to establish a structural integration between its technological expertise and market knowledge and is thus forced to manage the flow of knowledge. Although we were forced to expand the scope of the analysis to the corporate level (i.e., Canon Inc.) on some points, the study's focus is on Canon's European organization. Like the other two case studies, the case description of Canon incorporates the elements of our strategic "fit" model. In the next section, we present an analysis regarding the particular knowledge environment of Canon by describing the characteristics and configuration of its product portfolio, the industry's competitive success factors, and the various changes in the firm's business environment. In section 8.3, we focus on Canon Inc's corporate strategy. We describe the perspective of this corporation towards the scope of its business portfolio, the internationalization strategy, and the importance of leveraging internal knowledge resources in the past and for the future. Thereafter, we explicate the organizations of Canon Inc. and Canon Europe and scrutinize its administrative heritage. Subsequently, in section 8.5, the management tools relevant from an intracorporate knowledge sharing point of view are enlisted and investigated. The last section confronts the theoretical propositions and the empirical observations of the Canon organization with respect to managing intracorporate knowledge sharing. We systematically review the identified management tools of the knowledge sharing awareness, persuasion, complexity



Adapted from Internal Documents

Figure 8.1: Canon's BCG Product Matrix and the Need for Question Marks.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total Sales (x US$ mill.)	8,633	9,483	10,738	13,116	16,776	18,145	18,586	17,827	18,770	21,025
Japan	2,662	2,819	3,383	4,018	4,939	5,639	5,561	5,564	6,163	6,969
North America	3,002	3,080	3,248	4,008	5,007	5,278	5,552	5,726	6,112	6,464
Europe	2,370	2,890	3,296	4,114	5,599	5,826	6,045	5,098	5,037	5,908
Other Areas	600	693	811	977	1,231	1,403	1,429	1,439	1,459	1,684
Net Income (x US$mill.)	104	129	360	372	596	499	346	205	301	534
Total Assets (x US$mill.)	9,801	11,009	12,620	15,887	17,747	20,366	21,003	21,023	21,620	23,895
Sales by Product (x US$ m.)										
Business Machines	6,400	7,150	8,462	10,488	13,225	14,323	15,117	14,992	15,913	17,672
Cameras	1,545	1,726	1,545	1,724	2,432	2,542	2,275	1,764	1,598	1,724
Optical and other Products	689	607	731	903	1,119	1,279	1,195	1,071	1,259	1,630
R&D Expenditure (x US$m.)	591	621	723	835	955	1,072	1,118	1,148	1,318	1,376
Number of Patents	523	847	723	949	868	823	1,106	1,038	1,096	1,087
Number of Employees	35,498	37,521	40,740	44,401	54,381	62,700	64,512	64,535	67,672	72,280
Japan	22,597	24,421	24,861	26,472	30,358	34,648	36,286	36,642	37,103	37,179
North America	3,350	3,675	4,777	5,723	8,753	9,024	8,967	8,151	8,363	8,923
Europe	5,888	6,728	7,799	8,508	9,369	9,681	9,609	9,544	10,537	11,222
Other Areas	2,663	2,697	3,303	3,689	5,901	9,347	9,650	10,198	11,699	14,956

Table 8.2: Canon, Inc.: Ten-Year Financial Summary (Adapted from Canon Fact Book 1996/1997).

reduction, and media system. This is followed by the formulation of some tentative conclusions on the barriers that still obstruct and complicate the initiation and effectuation of intracorporate knowledge sharing within Canon's European organization.

8.2 CANON'S CHANGING KNOWLEDGE ENVIRONMENT

Canon's origins date back to 1933, when a group of young men gathered in Tokyo to establish Seiki Kogaku Kenkyusho (Precision Optical Instruments Laboratory), Canon's predecessor. In 1935, they introduced a trial model of Japan's first 35mm focal plane shutter camera, called the Kwanon. A year later the laboratory was relocated, and two years later the enterprise's name changed to Seiki Kogaku Kogyo, K.K. (Precision Optical Industry Co., Ltd.), marking Canon's official beginning. Today, Canon is one of the world's leading manufacturers and marketers of precision instruments and business machines. Canon is dedicated to the sale of user-friendly, innovative products and technologies that improve (visual) communication between people and provide tangible documents for present and future reference. The company's capital amount to more than US$ 23 billion and, with up to 70,000 employees in countries around the world, its activities span the globe.

Financially, Canon Inc. is doing quite well during the past few years. After a decline in total sales and net income in 1993, Canon's total turnover and net profit, comprising respectively US$ 21.0 billion and US$ 534 million in 1995, have strongly recovered in 1994 and 1995 and were expected to further expand in 1996. The product group Business Machines (see Exhibit 8.1) is by far the largest product group with a 84 percent contribution to total sales related to 8.2 percent and 7.7 percent by respectively the divisions Cameras and Optical Products (see Exhibits 8.2 and 8.3). Divisional sales forecasts for 1996 project a 10.5% sales increase in the copier division, a 10.4% rise in computer peripheral equipment sales, an 11.1% jump in sales of information and data communications equipment, and a 31.4% surge in sales of optical and

Canon CAMERAS

Canon's technological contribution to the camera industry has been profound. With products as, for example, single-lens reflex cameras, compact cameras, 8mm camcorders, and lenses the Canon Cameras division contributed approximately 8% to total sales in 1995.

Competition in the camera business is tough and puts a downward pressure on price levels and hence on profits. In this market, however, consumer demands start to differ strongly over the world. The introduction of the world's first camcorder model to feature eye-controlled focus, for example, was very successful in Japan, but much less in Europe. Consequently, questions have risen whether Canon's strategy of adding valuable features to its camcordors in order to maintain its position in this market will be very effective in Europe. Concerning the future Canon expects to make progress in the digital cameras market.

The main competitors are: Contax, Nikon, Rollei, Olympus, Pentax, Minolta, Metz, and Yashica.

Adapted from Internal Documents

Exhibit 8.2: The Product Group Cameras.

Canon BUSINESS MACHNINES

The largest product group of the Canon Corporation is by far the product group Business Machines which contributes more than 84 % to Canon's Total Sales. Consequently, a distinction is often made between the Copier, the Computer Peripherals, and the Business Systems part of the Business Machines Division.

A: THE COPIER BUSINESS

The Copier business of Canon is still accountable for more than a 36% share of consolidated sales. The main products are full-color copiers, office copiers, personal copiers, and consumables. Overall, the copier market is a mature market. With a 50% share of the strongly expanding market for color copiers,however, total sales is growing in this segment and a considerable growth in demand, as more and more offices move over to color documentation, is still expected. Moreover, impressive gains are made by personal copiers as more people use copiers at home.

For the future, the outlook is bright for the digital copier market which is likely to demand higher-speed full-color copiers. Image processing and compression for high-speed links with computers is an area of R&D Canon continues to focus on, since these are important issues when reproducing color originals or trial-run printing from multimedia equipment.

The main competitors in this segment are: Rank Xerox, Minolta, Mita, Nashua, Ricoh, Toshiba, and Sharp.

B: THE COMPUTER PERIPHERALS BUSINESS

The Computer Peripherals business of Canon contributes approximately 30% to total revenues. The main products are Laser beam printers, Bubble Jet printers, and Image scanners. Although competition is strong in the printer segment, Canon is still the largest manufacturer of Laser beam printer engines with a 70% market share.

The next few years are certain to be marked by dramatic growth in demand for color printers in the office and at home. Besides use in conventional printers, Canon's Bubble Jet printing technology now finds commercial application in other exciting fields such as full-color textile printing in more than 16 million colors. Canon's most promising technology in this segment, however, is the ferroelectric liquid crystal display. Canon's development workers are convinced that the inherent advantages of this technology can change the face of the next generation of information systems.

The main competitors in this segment are: Hewlett-Packard, Minolta, Oki, and Rank Xerox.

C: THE BUSINESS SYSTEMS BUSINESS

The Business System segment of Canon takes approximately an 18% share of total sales annually. The main products are computers, faxes, word processors, micrographics, personal information equipment, and electronic typewriters. Strategic products in Canon's line-up of business systems, such as notebook computers and handy terminals, are perfoming quite well. Because Canon lacks experience and know-how in producing computers, Canon markets IBM and Apple computers in Japan to be able to provide the "one-stop" shopping service to the consumer.

The next few years will see a further demand for "anywhere, anytime" communication and hence a further growth of the portable computer market. Although notebook computers with built-in printers are still new to to consumer, Canon expects that the built-in color printing market will further expand in the next years.

The main competitors in this segment are: Nashua, Oki, Ricoh, Sharp, and Rank Xerox.

Adapted from Internal Documents

Exhibit 8.1: The Product Group Business Machines.

Canon OPTICAL PRODUCTS

Canon became involved in the mask aligner business more than 20 years ago. The main products of this division are semiconductor production equipment, broadcasting equipment, and medical equipment. Optical products was accountable for a 7.7% share of Canon Inc.'s total sales in 1995.

The key to future success in the stepper market is the ability to continually update the technology. Next on the horizon are machines that will expose the silicon surface with excimer lasers, and Canon is working to develop a marketable product of this type. In the meantime, strong growth in the market is expected to continue in the coming years and hte current i-line products should continue to sell well. Moreover, Canon is actively pursuing further development of large-sized screens for aligners used for LCDs, and carrying out pioneering research in electron beams and element technology for steppers.

In the TV broadcast equipment segment prospects for the Canobeam transmission system - which uses a laser-based optical system instead of an electronic system to transmit video and audio signals - looks promising.

Looking to the future of medical equipment, the technology is moving from analog to digital processing. Images will be exchanged between hospitals and other locations through a digital network. Canon will focus, based on its expertise in digital technology, on product development in this area.

Adapted from Internal Documents

Exhibit 8.3: The Product Group Optical Products.

other equipment (Salomon Brothers, June 26, 1996). On a geographical basis, the Japanese, the American, and the European region contributed respectively 33%, 31%, and 28% respectively to Canon's total sales in 1995. Although strongly growing, the total contribution of the other regions in the world is still very small (8%).

Historically, Canon's strategy towards its product-markets has been strongly based upon its technological leadership. As stated by Goold *et al* (1995: 174): "R&D drives Canon's strategic thinking and is central to Canon's behavior and management style." Canon sees its R&D performance as its main strength on the assumption that Canon's competitive advantage and market success start at the research level. "Canon often pursues technologies," one Senior Managing Director explained Canon's philosophy, "that others in the industry may initially overlook. Among them are ferro-electric liquid crystal and LB films. [...] We want to distinguish ourselves from our competitors in terms of the products we sell. [...] We can always start from a market niche even if it is specialized and very small; if you have a great technology with which to penetrate that market, it will someday become mainstream. [...] Technologies such as bubble jet, FLC, and magneto-optics are only the tip of the iceberg. [...] Drawing on these elementary technologies, we can expect to see a technology explosion in the 21st century that will result in a vast array of entirely new business opportunities."[3]

The commitment to R&D has been driving the firm since its beginnings. Canon's Japanese founders instilled into their employees a strong dedication to technological development. This

3 These quotes were taken from an interview with Canon Inc.'s Senior Managing Director Hajime Mitarai, the company's top executive in charge of R&D, as published in the *Canon Chronicle* in 1993 (No. 172: 12-13).

Rank	1993 Company	No.	Rank	1994 Company	No.	Rank	1995 Company	No.
1	IBM	1,085	1	IBM	1,298	1	IBM	1,383
2	Toshiba	1,040	2	Canon	1,096	2	Canon	1,087
3	Canon	1,038	3	Hitachi	976	3	Motorola	1,012
4	Eastman Kodak	1,007	4	General Electric	970	4	NEC	1,005
5	General Electric	932	5	Mitsubishi Electric	970	5	Mitsubishi Electric	973
6	Mitsubishi Electric	926	6	Toshiba	968	6	Toshiba	969
7	Hitachi	912	7	NEC	897	7	Hitachi	910
8	Motorola	729	8	Eastman Kodak	888	8	Matsushita Electric	854
9	Matsushita Electric	712	9	Motorola	837	9	Eastman Kodak	772
10	Fuji Photo Film	632	10	Matsushita Electric	771	10	General Electric	758

Table 8.1: Top 10 Corporations receiving US Patents in 1993-1995.

tradition spurred the company to introduce numerous new products during the course of its history. It also provided the impetus for diversification into areas as medical diagnostic equipment and business machines during the 1940s, 1950s, and 1960s. With a R&D budget of approximately 10% of Canon Inc.'s total sales, the R&D expenditures are, proportionally, very high. As a result of this policy, Canon is ranked on a continuous basis in the corporate top 5 in terms of the number of received U.S. patents (see Table 8.1). The emphasis on product standardization combined with their technological skills and know-how has enabled Canon to outperform competitors regarding product development and production efficiency. For example, Canon rewrote in the 1980s, as described by Ghoshal and Ackenhusen (1992), the rule book on how copiers were supposed to be produced and surpassed Xerox in the number of units sold after being market leader for more than two decades. On the basis of exploitation of their technological know-how and experience, Canon was able to optimize the product concept of the copier and overwhelm the main competitors in this industry.

So, based on an emphasis and commitment towards R&D, Canon became well known throughout the world as a provider of many highly advanced products and intermediaries. Its cameras, printers, mask aligners, and copiers came to be highly appreciated and very well sold globally. "Notwithstanding this innovative image, we have to admit," one of Canon's managers stressed, "that until recently the main thrust of Canon's technological development has been taking, refining, and upgrading foreign technology. It is often claimed that the Japanese are not creative and tend to be copiers and I really think they are true. Japanese didn't invent the car or didn't invent the engine. They only optimized the components by making it faster, smaller, or more convenient and they had a process of manufacturing and assembling based upon such concepts as just-in-time, quality circles, and teamwork in which they were the best."

At the start of the 1990s, however, Canon Europe was confronted with various changes in its business environment which made the company wonder whether the strategy of the past was still the most appropriate strategy for the future in order to keep its competitive strength. First, the integration process took away the economic borders between the member states of the European Community. Instead of working along the lines of language and currency, pan-European marketing and distribution strategies became essential. Canon had to transform its European distribution center into a genuine European headquarters with more responsibilities

in terms of directing, coordinating, and controlling the scattered operations throughout the region. Second, the rising yen put major pressures on Canon's global performance because Canon still exports a major share of its products (75%). Short-term measures like raising prices, vastly expanding sales channels, and cutting costs only created further problems instead of solving the existing ones and hence more drastic decisions like expanding overseas production seemed inevitable. Third, Canon was forced to become more market-oriented. Due to a growing need to customize and adapt standardized products, an increased difference between customer demands among regions, and the need to create new product concepts to continue the success of the more mature product categories, the one-sided emphasis on Canon's technological expertise no longer sufficed.

As one manager of Canon Europe expressed: "Canon's technological knowledge is good and advanced and this know-how has been the foundation of our success in Europe for many years. Recently, however, we are detecting a growing problem to sell our products in Europe. These products are developed, produced, and tested in Japan by Japanese for the Japanese market and hence do not perfectly match the needs of the European consumer. [...] Moreover, most of our current products are maturing and a feeling of uncertainty can be detected throughout the organization that our current products do not fit the needs of the so-called digital age. Many of our products are analogue and stand-alone products, while our 'electronic' future is described in terms as networks, digitalization, and systems. [...] We are forced by these trends to think how our products will fit in this environment and we need to acknowledge that we have no choice but to create and develop new product concepts for which no role model exists yet."

"In the past we could exploit our ability to optimize existing product concepts," an other manager complemented the argumentation of his colleague. "We were always strong in miniaturizing, for example, but we can not make things smaller anymore and hence we are forced to develop new product concepts perfectly adapted to the particular needs of the consumer. These consumer demands, however, differ strongly between Japan and Europe. The Japanese, for example, value the number of features on their camera and are very eager to have the newest version of the product while the European consumers are satisfied with a few buttons, appreciate a superior design, and only buy a new camera if the old one is broken. [...] Although we are trying to find the appropriate balance between standardization and differentiation, the European consumer forces us to leave our old strategy of standardization and start to adapt and customize more intensively to the local demands throughout Europe."

Mr. Tanaka, President of Canon Europe, strongly agreed with his subordinates. "In the past," he claimed, "our competitive success was founded on our unparalleled capabilities in product development. Hugh investments and dedicated taskforces added distinctive product and process know-how to our efforts to optimize existing product concepts like copiers and cameras. [...] Our technology-related competences perfectly matched the requirements of the high-tech industry. [...] More and more, however, we are forced to adapt our products to the particular demands in our markets. If you make a distinction between industrial products,

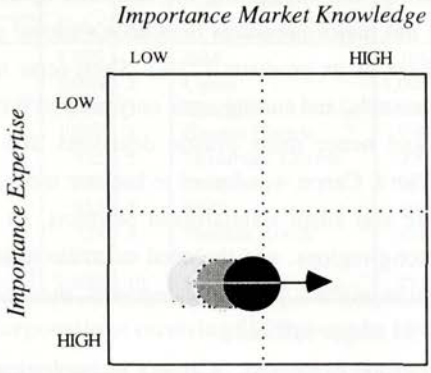


Figure 8.3: Canon's Knowledge Environment Grid.

business products, and consumer products, the need for local adaptation is particularly severe in the consumer segment. Of course, we need to adjust to the differences in standards, language, and laws in each country in the industrial and business products areas, but the pressure for customization is by far the most intensive in the consumer products segment of our business. [...] The consumer asks for customized products. We need to improve our ability to collect, process, and aggregate information on the particular market circumstances in the European region."

So, Canon's knowledge environment appears to be strongly in transition during the 1990s. Although most of Canon's products are still competing in high-tech industries and the continuous development of the corporation's technological knowledge base remains a critical success factor in the competitive battle with competitors, the need for market knowledge and its cross-fertilization with the skills and know-how within the research & development area seems evident. While more and more competitors are able to match Canon's technological capabilities, a customer focus enforces the nature of competition to concentrate on product adaptation and customization strategies. Tailoring your products to what consumers want has become a necessity. Moreover, Canon has to invent new concepts to replace the maturing products and has to prepare itself on competing in the "digital age" as we enter the next millennium. All these developments imply that the importance to collect, aggregate, and exchange market knowledge is growing fast, while at the same time Canon has to keep its edge in technological excellence (see Figure 8.3). As one manager stated, "We really need to learn to serve the needs of the consumer and because we need to secure our scale economies, this is where knowledge sharing becomes more important for us."

8.3 CANON EUROPE NV WITHIN CORPORATE STRATEGY

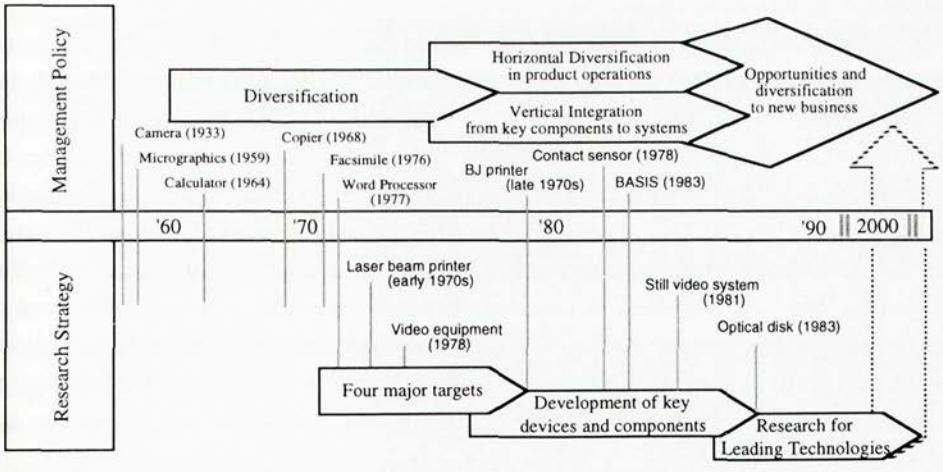
Observing what Canon has achieved thus far as well as how Canon wants to continue to conduct its business, it is interesting to learn the role of Canon's corporate strategy in these

achievements and how this strategy aims to reinforce the business strategies in the near and distant future. According to the Canon Handbook, a firm document specifying the corporate philosophy and code of conduct, success depends on "... synergistic management of the total technological capabilities of the company, combining the full measure of Canon's know-how in fine optics, precision mechanics, electronics and fine chemicals." Top management's strive to generate corporate value by leveraging the firm's knowledge reservoir has been the foundation for Canon's parenting advantage in the past three to four decades. Without any doubt, Canon's focus on and performances in research & development and the continuous upgrading and leveraging of its technological skills have been distinctive elements in Canon's competitive success in a multitude of regional and national product markets.

A corporate strategy, however, embraces more than the preferred parenting advantage. In defining a strategy concerning the corporate whole, a firm's top management has to decide on the firm's scale and scope and hence on the diversification and internationalization of the firm's business activities. With respect to Canon's scope, the firm has gone through a gradual diversification process based upon its technological expertise. As depicted in Figure 8.4, Canon has been adjusting and extending its product portfolio over the past four decades. In the earliest era, based on 3mm focal plane shutter camera, Canon established a solid reputation for the quality of its still and X-ray cameras. During the 1950s, the first steps were taken on the road to product diversification by marketing 8mm movie cameras, television lenses, micrographic equipment, and components. By introducing products like the copier, mask aligners, electronic typewriters, laser beam printers, facsimile transceivers, and business imaging systems, Canon built and consolidated its position as an integrated business machine maker in the 1960s to 1980s.

Canon's Diversification Strategy

A Look into the Past, Present and Future



Adapted from an Internal Document.

Figure 8.4: Canon's Diversification Strategy: From 1933 to 2000.

Concerning the coming decade, characterized by the start of the digital age, Canon wants to position itself as providing the input and output devices through which people interact with technology and each other. A growing demand exists for integrated system providers, serving the customer's complete demand for office automatization. In practice, however, Canon tends to affect the opportunities for intracorporate knowledge sharing by not making "hard choices" regarding their core business. Although now tied together by the developments in the research & development area and hence by a definition of their core skills and know-how, Canon is often inclined to extent its product portfolio to new areas in which it has a limited amount of experience. Recently, for example, Canon entered the textile business to leverage its distinctive knowledge in printing. The textile industry, however, differs strongly on various aspects from the high-tech industries in which Canon is historically involved and printing technology is at most one of the critical success factors in this business.

The internationalization of Canon started early in the company's history. To further increase the leverage of its R&D expenses and to boost sales and profit figures, Canon expanded its business gradually to the "overseas markets" in the late 1950s (e.g., marketing arms in US 1955, Switzerland 1957, Latin America 1962). Instead of spreading the product and process know-how and experience by acquiring or opening fully equipped foreign subsidiaries[4], Canon Inc. deliberately kept strong centralized control over knowledge development and knowledge application responsibilities, and retained the associated resources in or close to Japan. By exporting the end products to the fully or partially owned sales branches abroad, Canon commercialized and exploited its reservoir of knowledge on a pure technological level. Canon created a clear division between its product groups (R&D, manufacturing) and its sales & marketing operations. Standardized products were developed, produced, tested, and shipped in Japan to reduce the need and complexities of managing the transfer of product and process know-how. Canon created a maximum operational leeway for its sales & marketing subsidiaries to enable these firms to do whatever was necessary to sell Canon's products throughout the respective regions.

Apart from advantages like economies of scale and the low value of the yen, Canon's export strategy has strongly added to its ability to exploit its extensive investments in research and development. As a result of concentrating the dominant part of its knowledge exploration activities, Canon keeps tight control over knowledge resources, achieves cost efficiencies by reducing duplication of focused knowledge development efforts, and circumvents devaluation of knowledge items due to an absence of managing the complexity related to the transfer of technological know-how and experience. Sharing of intangible and human-embodied knowledge items encompasses, as this study has stressed numerous times before (and as proved by Canon's current quality and efficiency problems in its recently established production plants in some low-wage countries), numerous complexities that are difficult to eliminate and govern. By incorporating the available knowledge directly into end products and

---

4 The strong centralized control over development resources is typical for Canon and in this respect Canon differs from the other two case study companies, Unilever and ITT.

shipping them to overseas markets where marketing and sales were its only activities, Canon has successfully circumvented numerous problems related to managing intracorporate knowledge sharing for many years.

The growing request for more customized products, a significant and increasing difference between consumer demands in Japan and Europe, and the fact that the main part of Canon's portfolio is maturing, however, made corporate and European headquarters wonder whether the one-dimensional, technology-oriented export strategy of Canon was still the most appropriate strategy for the future. Questions were raised within the Canon organization about the limited role of the European organization in terms of product specification, development, and production. Moreover, European managers were convinced that the know-how and market information residing in the various sales companies had to be exploited more intensively to be able to react appropriately to the changing circumstances in Europe.

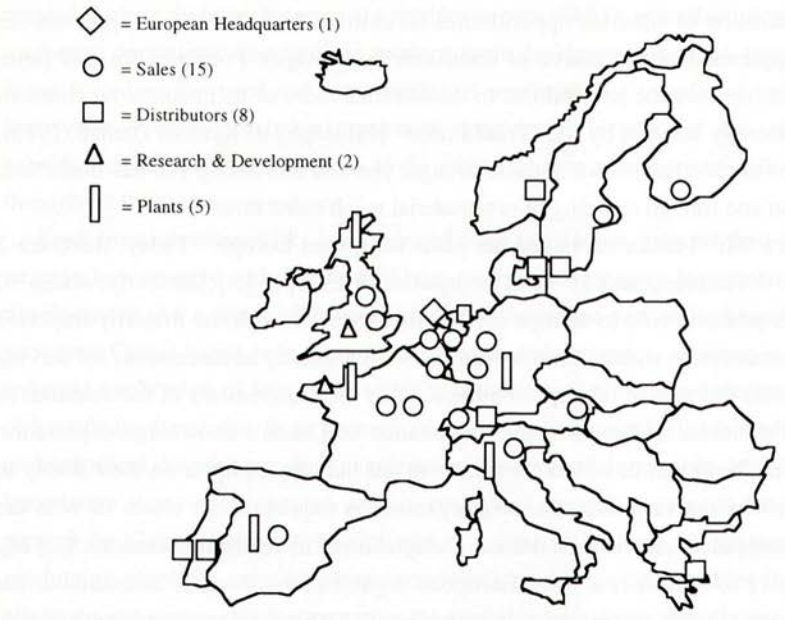
Canon's difficulties with systematically collecting and aggregating market information regarding the overseas regions jeopardize its global business seriously. Without the availability of a well-grounded market feeling at the home-based research and development sites, no effective cross-fertilization is achievable between Canon's highly valued technological expertise and the demands in the numerous marketplaces. A market feeling, however, as argued in chapter 2, is often difficult to codify and hence transfer. As stated by Johanson and Vahlne (1977), market knowledge is experimental in nature, which means that it is obtained through operating in the market and hence through the confrontation with all kinds of market signals. It is this type of knowledge that gives a decision maker feeling for the market and allows the identification of concrete opportunities (as distinct from theoretical opportunities which may be apparent from objective or codifiable knowledge). Primarily for this latter reason, Canon Inc. reviews the possibilities to decentralize more of its business functions to regional levels, strongly inspired by the "Triad Power" philosophy of Kenichi Ohmae (1985). Moreover, the last decade has shown a much stronger yen and this strong yen has made both foreign production and foreign sourcing of raw material much more attractive.

In an interview Mr. Tanaka explained his plans for Canon Europe: "Today, there are 2 research centres, 5 factories, and 20 sales companies in Europe. [...] Currently, about 30 percent of Canon products sold in Europe are locally produced, with the majority imported from Japan. In a situation in which Canon's products were primarily advancements for serving known market needs this spread of responsibilities suited the requirements of the demands in most high-tech businesses and secured the exploitation of Canon's knowledge exploration activities. In a time, however, in which companies in our industry compete on their ability to innovate to serve new market needs, Canon's organization requires some closer fit with the local market circumstances and hence a dramatic adaptation of its regional operations. [...] My target in Europe is to establish a truly European organization which is accountable for marketing, sales, production, and product development. [...] This requires, however, a drastic change of the way we operate today, a different role for our sales companies, and more

intensified communication, both in quantitative and qualitative terms, with our colleagues from Canon Inc."

So, consumers and other stakeholders still perceive Canon to be a high-quality supplier of high-tech products which has been very successful throughout the world for many years. Changes in its knowledge environment, however, obligate Canon to achieve a cross-fertilization between its market and technological knowledge. Combining this observation regarding Canon's changing knowledge environment with one of the key assumption in this study that the need to share knowledge increases along each dimension of the knowledge environment grid, particularly when a multinational enterprise is confronted with a growing need to achieve a balance between expertise and market knowledge, made us conclude that Canon has no choice but to manage the flow of knowledge within its organization.

When asked for current and prospective responses to this emerging need to accomplish a successful integration between its technological expertise and demands in the marketplace, top management referred to a distinction between a short and long term reaction. On the short term, Canon will try to improve the organizational capabilities of its regional operations to collect, share, and aggregate market information and the transfer of this knowledge to the engineers and marketing managers of the centralized knowledge development departments of Canon Inc. Top management has directed and authorized the implementation of new management tools, as described in section 8.5, to stimulate and facilitate the front-line



Adapted from an Internal Document.

Figure 8.5: Canon in Europe: Group Companies and Distributors.

managers to procure and communicate their findings and experiences. On the long term, however, Canon's organizational strategy is to decentralize most of its business functions to three dominant regions, being Asia, the United States, and Europe. Accepting the increased complexity to control, exploit, and manage its technological expertise and acknowledging the need to improve its organizational ability to share regionally dispersed expertise, Canon shifts to operating more closely to market in the future in order to become better able to customize the firm's product offerings to local consumer demands.

8.4 CANON EUROPE'S ADMINISTRATIVE HERITAGE

Canon has no luminous past record for crossing divisional or company boundaries for sharing best practice, technological achievements, or information on particular market circumstances on an inter-subsidiary basis. Home-based research, development, and production processes have gained, as many Japanese companies have done during the past decade (Hedlund and Nonaka, 1993), from talent and the strong tolerance for working with tacit knowledge. Tacit knowledge is shared through regular and intensive interaction, allowing transfer and expansion of those knowledge items which are difficult to articulate such as market feeling, skills, and capabilities. In contrast to Western attitudes, the Japanese orientation and motivation are strongly directed at the organizational and group level (Whitehill, 1991) and hence are more concerned with the intraorganizational domain in knowledge management. Quality circles, ring systems, long working hours followed by collegial after-hours talk and drinking are all mechanisms to encourage sharing of knowledge and have led to powerful and efficiently manufactured advancements of existing product concepts.

Notwithstanding their corporate successes during the late 1980s and early 1990s, strongly based on their ability to work with tacit knowledge and to establish highly integrated work settings, Japanese companies have often proved weaker in fields where sales of products had to be complemented with complex services and other non-standardized ingredients and where integration of very large systems and complex system management were a necessity (Hedlund and Nonaka, 1993: 137). The reliance on internal dialogue, largely at the tacit level, seems to be less effective in more dynamic, non-standardized businesses and in situations when complex, non-routine tasks have to be coordinated. This probably explains why Canon has not managed to establish a successful track record in sharing internal knowledge resources on an international basis. The Japanese model tends to be too time-consuming, is reluctant regarding short-term and unstable cooperative relationships, and often is strongly inward looking. "Communication," as argued by Whitehill (1991: 212), "is a particularly hazardous affair both because of the language itself and the inner-directed orientation of the people."

In our view and more or less in conflict with the observations of other strategic management theorists (e.g., Ghoshal and Ackenhusen, 1992; Goold, Campbell, and Alexander, 1994), Canon's top management has been confronted with significant difficulties in achieving

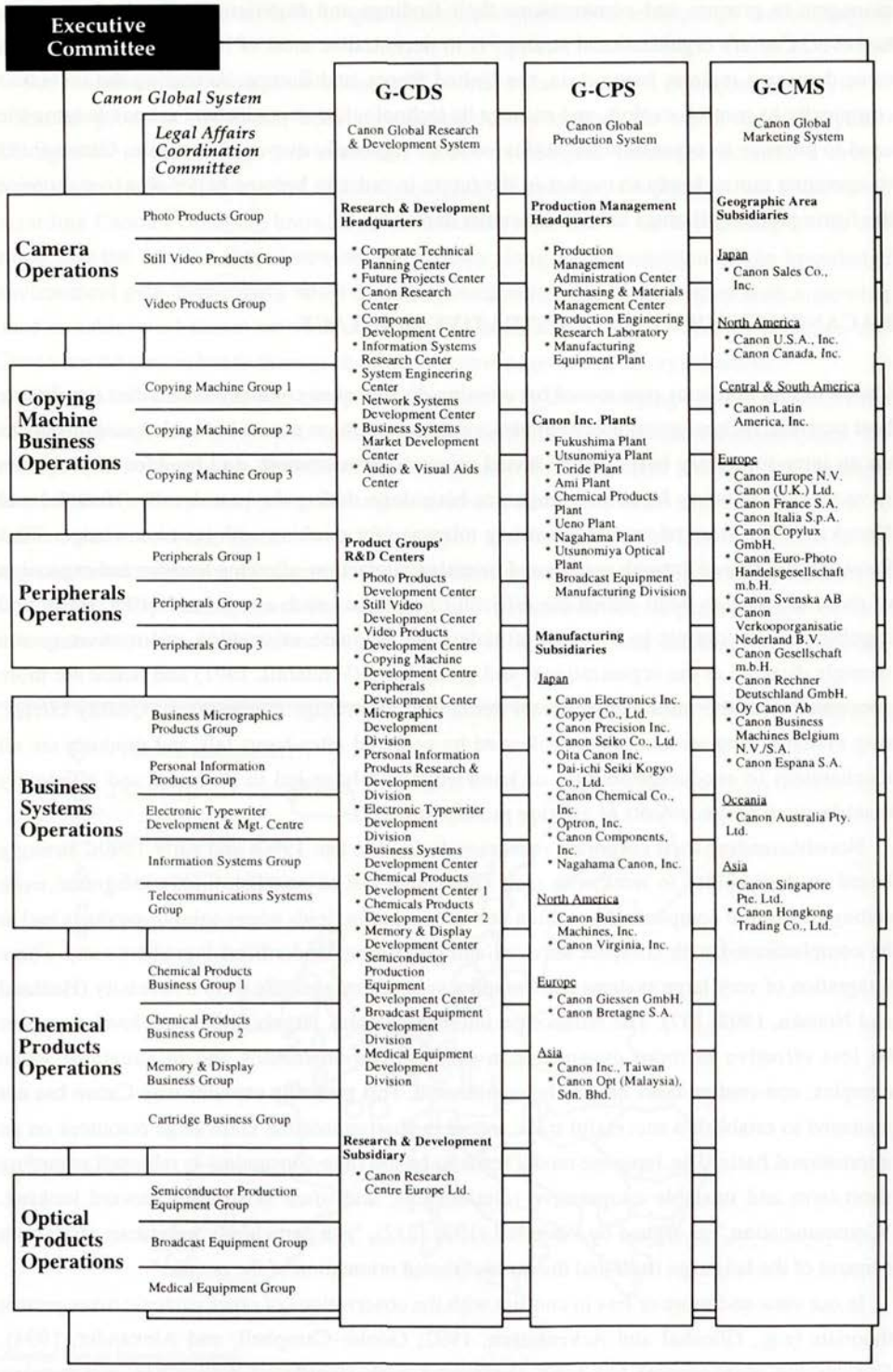


Figure 8.6: The Canon Organization.

linkages and cross-fertilization between different areas of technology, between technologists and market needs, and between different markets. As concluded before, Canon's main corporate and competitive strength is based upon research & development. With a proportionally very high budget for knowledge exploration activities, Canon is strongly committed to the enhancement of its technological expertise and strives to be a worldleader in this respect. The exploitation of this primarily home-based knowledge well is achieved by a well-orchestrated export and Original Equipment Manufacturer (OEM) business. More problematic for Canon, however, is the leverage of knowledge items residing unstructured in the individual divisions or companies, especially in the heterogeneous European region.

During the last two decades, the number of employees working for Canon across the world has more than doubled to approximately 70,000 employees. Due to this rapid expansion of the Canon corporation, the internal organization which was primarily organized via Canon's product lines needed to be adapted. In 1976, the Premier Company Plan posed a dynamic management strategy designed to maintain the spirit of challenge regardless of how large Canon's operations would become, and to ensure the company's unity, no matter how it diversified. By proposing the implementation of three systems to enhance research and development, manufacturing, and sales operations, the corporate management system was completely restructured (see Figure 8.6). The Global Canon Development System (G-CDS), the Global Canon Production System (G-CPS), and the Global Canon Marketing System (G-CMS) became the horizontal links between the vertical pillars of Canon's three product groups: cameras, business machines, and optical products. In the day-to-day coordination activities, however, the formal organizational chart tends to be less important for the Canon organization than it often is in many Western corporations.[5]

"Although formally existing," one manager argued, "this organizational chart does not represent the way we operate in practice. Till today, we orientate ourselves totally according to our product lines. [...] Besides some training, incidental task forces, or informal meetings, managers from different product groups do not have many opportunities to meet each other and only a few systems are in place to facilitate the cross-divisional coordination and communication." The product groups have much autonomy with respect to their responsibility for product development and process improvement, and development projects are therefore often redundant or overlapping. This lack of cross-divisional communication creates problems with respect to maintaining unity and allowing the groups to exploit complementary know-how and expertise. Particularly because the technology used by a number of Canon product groups has been converging strongly, much value could be realized by establishing more cross-divisional coordination.

"The way this organization operates is difficult to depict in an organizational chart," one manager added. "For the Japanese the informal organization is often more important than the

---

5 The observation that the coordination and communication linkages in the formal organizational chart differ from those in practical settings has been confirmed by other interviewees. Moreover, it is a phenomenon which could be observed in many Japanese organizations (Whitehill, 1991).

formal one and hence a great deal of manoeuvrability exists in the corporate organization of the Canon organization." The basic unit in the organization is a collectivity, not an individual, and this feature clearly reflects the group orientation so characteristic of Japanese society (Casson and Nicholas, 1989; Whitehill, 1991; Sai, 1995). In contrast to Western individualism, Japanese are typically fond of doing things together in groups. They are socialized from early childhood to consider themselves to be members of a group. Groupism requires subordination of individuals to the goals and norms of a collectivity. This may be one's family, class of school, corporation, organization's department, or Japan itself. It is considered right and good to be dedicated and loyal to such groups, and to be satisfied with basking in the glories and accomplishments gained through collective efforts. At the same moment, however, this groupism and orientation to the own product division can be the main barrier to cross-divisional orientation and coordination.

"More threatening than these difficulties on a cross-divisional level, however," one European manager stressed, "are our problems with integrating our operations on the front-line level. The marketing and sales function within Canon operates quite independently with a minimal level of coordination with the other functions and product groups. The basic philosophy of Canon with respect to its sales and marketing operations has always been to give the front-line units as much operational space as possible to accomplish the primarily task they have, namely selling the Canon products. Due to the growing competition and the European integration which enforce a reduction of costs and a request for more customized products, we need to integrate more strongly and reap the available economies of scale. Particularly in Europe, however, the integration of our operations is significantly complicated by the way we have built up our organization in this region."

In Europe, Canon Camera Co. Inc. opened a sales office in Geneva, Switzerland in 1957 to distribute the Canon products continent-wide. In 1967, however, rapid sales growth led to chronic space shortages at the Geneva facilities which underlined the need to find a more efficient business "hub" in Europe. Canon's central warehouse location and pan-European administration activities were relocated to a place near Amsterdam in the Netherlands. In contrast to competitors like Hewlett-Packard and Xerox, however, which have established fully-owned sales and marketing subsidiaries throughout Europe, Canon has gradually integrated vertically by acquiring full or partial ownership over its distributors during the past two decades. Sixteen companies with their own operational and administrative heritage were attained and "Canonized." By building on firm-owned sales organizations, Canon hoped to get more control over its operations in Europe.

In reality, however, Canon's influence over these companies remained very small. The companies which had acted independently for many years developed and institutionalized their own unique ways of doing business, their own management systems and procedures, and their own terminology. Moreover, each company in each country defined its business differently and hence covered different parts of the value chain regarding such areas as consumer service and distribution structure. For instance, Canon UK deals directly with the customer, while

Canon Germany acts as a wholesaler. Canon UK gets its real return from servicing because this organization tries to agree with the customer on a service contract, while Canon Germany does not employ a service organization at all. So the diversity which is so characteristic for the European region also resides very strongly in the Canon organization itself. Moreover, the independent background of the distributors limited the company's ability to think beyond the boundaries of their own organization and hence conceive the various corporate advantages.

"In an attempt to let our voice heard within the Canon organization and stimulate and facilitate more unity between our European companies on the longer term," Mr. Tanaka said, "we have decided in 1993 to act more strongly as a European Headquarters. Although we still lack the power to enforce certain changes, definitely with respect to our largest companies in the UK, France, Germany, and Italy, we increasingly try to formulate strategies and institutionalize business processes on a pan-European basis. [...] In the past, we were never involved in the organizational issues of our sales companies and acted more or less as a European warehouse. [...] Although some scepticism still exist with regard to the value added role of a European headquarters, particularly the smaller countries are eager to cooperate more strongly."

In 1993, a new organization was established to coordinate Canon's operations in Europe. While the big four companies are still fully equipped to operate in their own country with limited interference from Canon Europe NV, the smaller countries like Finland, Switzerland, and Portugal are reporting to and coordinated by a separate headquarters group, called Trade Operations (see Figure 8.7). The Trade Operations Group, comprising 165 people located at the headquarters in the Netherlands, has a responsibility for various functions like distribution, warehousing, pan-European advertisement campaigns, and sales planning. A strongly structured meeting program exists to coordinate the operations. During these meetings the

The History of Canon in Europe

1957	Canon sales agency established in Geneva
1963	Canon SA Geneve established
1968	Canon Amsterdam N.V. established
1972	Canon Giessen GmbH, a copier production facility, established in W. Germany
1982	Canon Europe N.V. formed in Amsterdam to serve as European Headquarters
1983	Canon Bretagne SA established for the production of PC copiers in France
1987	Ing. C. Olivetti & C S.p.A. and Canon set up a joint venture, Olivetti-Canon Industriale S.p.A. to manufacture office equipment
1988	Canon Research Centre Europe Ltd. established in the UK.
1991	Canon Audio Ltd. opens at the Surrey Research Park, UK International Service Parts Center opens near Schiphol Airport, Amsterdam
1992	A second European research center, Canon Research Centre France SA, opens in Rennes
1993	Canon Manufacturing U.K. Ltd. in Glenrothes, Scotland established.
1993	Trade Operations established to coordinate the operations of the smaller countries in Europe.

Adapted from the Document "Canon in Europe - Looking Forward to the Next 25 years".

Table 8.2: History of Canon in Europe.

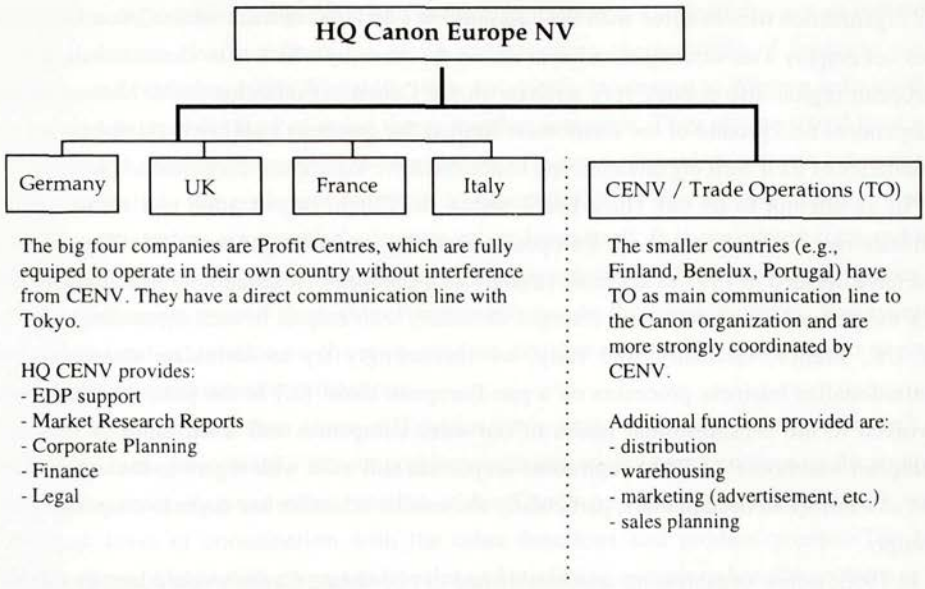


Figure 8.7: The European Organization since 1993.

participants discuss about competitors (e.g., their strategy, their achievements), share ideas, and create a European way of thinking. Moreover, headquarters employs so-called marketing and sales coordinators who operate as liaisons between the companies based on their knowledge where best practice and key business information resides.

Notwithstanding the institutionalization of the Trade Operations group, the allocation of more and stronger decision power to the European headquarters, Canon acknowledged, could only become of effect if supported by the sales & marketing companies. "We increasingly expect from our sales branches," one of the managers at the European headquarters stated, "that they help us in building a European organization and a European voice within the global Canon corporation. [...] On the one hand, we ask them to tell us what kind of products they would like to sell based on their knowledge of the market. [...] In the past, our sales branches in Europe were just shipping the products to the dealers and negotiated on the margins. That's where their responsibilities ended. Now, more and more Canon Inc. is asking for the help of the Canon organization in defining the required products. This means that the companies are becoming true marketing organizations. Instead of being responsible for the sales of the products, they are going to participate more and more in the specification and development of new products. [...] On the other hand, the transition from a European sales engine to a real European organization with the additional responsibilities for product development and production, would imply that the transfer of product and process knowledge from Japan to Europe and between the companies in Europe would become a more serious management issue. The various sales and marketing companies, although differing strongly, could learn a

lot from each other and increasingly cooperate with respect to their knowledge development activities."

8.5 CANON'S MANAGEMENT TOOLS TO MANAGE KNOWLEDGE SHARING

Canon is increasingly forced to cherish and systematically exploit both its technological expertise and information on developments in local consumer markets. At this moment, however, Canon still lacks an effective "knowledge sharing culture" in Europe. In its attempt to stimulate and facilitate intracorporate knowledge sharing, Canon's top management meets great opposition as the outcome of the firm's administrative heritage but has available a broad repertoire of management tools that provides an infrastructure for shaping and for changing the behavior of managers throughout the organizational hierarchy. Five of Canon's implemented management tools are described and analyzed in this section. In the following order, we elaborate briefly on the corporate culture and socialization program, the flexible formation of project teams, regular international management meetings, information collection and dissemination roles, and the expatriation of Japanese managers to occupy key nodes in the European information network.

TOOL #1: CORPORATE CULTURE & SOCIALIZATION

Canon has a strong organizational culture, particularly in the native part of its organization. A dominant corporate culture has the potential to overcome centralization problems in terms of headquarters overload and formalization problems like inflexibility, and in this respect can stimulate and facilitate the decentralization of knowledge sharing responsibilities. The organizational culture communicates to employees the acceptability of neglecting and opposing intracorporate knowledge sharing and hence increases behavioral consistency. A unifying culture can create an important backdrop in the search for linkages and their effective realization (Goold, Campbell, and Alexander, 1995: 172). Hence, a strong culture can be a powerful means in giving direction to an organization's intracorporate knowledge sharing

Management System Implemented Tools within Canon	Knowledge Sharing Awareness System	Knowledge Sharing Persuasion System	Knowledge Sharing Complexity Reduction System	Knowledge Sharing Media System
Corporate Culture & Socialization	☐	☒	☒	☐
Flexible Formation of Project Teams	☒	☒	☐	☐
Structured Meeting Agenda	☒	☐	☒	☐
Information Collection & Dissemination Roles	☒	☒	☐	☐
Japanese Expatriates on Key Positions	☐	☐	+/-	☒

Table 8.3: The Management Tools Affecting the Actual Level of Knowledge Sharing.

Canon's Corporate Culture

Philosophy

Canon's operations worldwide are guided by the company's kyosei philosophy - living and working together for the common good. Our 67,000 employees respect this ideal as we bring more pleasant working conditions to the office, a better quality of life to individuals, and greater productivity to industry through innovation in cameras, business machines, and optical products along with our dedication to Customer Satisfaction.

Approach

We approach kyosei through what we call tsushin - heart-to-heart and mind-to-mind communication between two parties. By taking a tsushin approach to business, we aim to build a relationship of trust with our customers. Tsushin is a prerequisite to success in our business, and because our most successful product lines are computer related and provide input and output tools enabling people to interact with technology and each other, this trend toward tsushin business will further benefit the company.

Responsibility

A truly global corporation has a responsibility to the peoples and nations it operates among, as well as to our natural heritage. Canon takes these obligations seriously. We understand that E (meaning ecology or environment) stands above the business basics of QCD (quality, cost, and delivery), and we also realize the importance of contributing to local communities everywhere.

From Canon Annual Report 1994.

Exhibit 8.4: Corporate Culture Profile of Canon, Inc.

activities and in building into the organization an implicit control mechanism. In one of its corporate documents, Canon characterizes its organization as "a tightly knit group of like-minded persons who seek mutual understanding through frank communications, share each other's joys and sorrows, and proceed as one toward common goals." Canon expects from its employees solidarity, mutual trust, and teamwork in the spirit of "*kyosei*," the basic philosophy to which all employees are supposed to be committed (see Exhibit 8.4).

In communicating the overall philosophy of the corporation, Canon's statement of mission is one particularly significant tool in creating the organizational culture within which most employees will spend their working lives. For example, stressing the importance of *tsushin*, defined as "a synthesis of heart-to-heart communication and mind-to-mind communication," makes employees aware of the importance to learn to understand each other and create mutual trust. Although the attention given to the tsushin philosophy has been reduced recently, it has stimulated Canon's managers to establish mutual understanding in their communication with internal colleagues. In spite of numerous language and cultural barriers, tsushin emphasizes the importance to listen and communicate carefully to achieve an effective transfer of messages. This kind of sweeping statements of corporate philosophy gives employees a sense of direction and hence a feeling to belong to a group that shares a common goal.

Apart from the formulation of an appealing and stimulating mission statement, Canon deliberately directs the development and institutionalization of a corporate culture by giving

much attention to the socialization of its employees. Although formed continuously throughout their careers, socialization is an important part of the training and introductory programs for those people starting their professional career in the Canon organization. Immediately upon entering the company, new employees in Japan will undergo for the period of at least a month orientation exercises and attend several meetings led by the president and other top-level executives. As in many other Japanese companies, these meetings tend to resemble pep rallies, with strong moral and spiritual overtones. "Team spirit," one of the Japanese expatriates stated, "is encouraged through singing up-beat company songs and reciting statements of company philosophy in unison."

Notwithstanding the importance and value for the native part of the organization, our study indicated that this unifying corporate culture was much less developed and dominant in Europe. Regarding the Canon organization, the European managers themselves felt much less involved than their Japanese colleagues. On the one hand, the lack of a corporate spirit in the European part of the organization is caused by the way Canon has built its European organization during the past two decades. The process of acquiring and merging a set of independent companies throughout Europe institutionalized much diversity in the internal organization. Each distributor has inherited its own company culture and is not used to adhere to and be committed to an internationally shared corporate culture. On the other hand, the less powerful corporate culture in the European organization is probably caused by the fact that most of the European managers, the Japanese expatriates excluded, are not involved in corporate management development or socialization programs. Canon has never developed an introductory course or a socialization program for its managers in Europe. Just recently, Canon announced a new training program (i.e., the Canon-Nijenrode MBA Program) for its key

The Canon-Nijenrode MBA Program

In October 1995, Canon Europe's top management announced the start of a new training program, the Canon-Nijenrode Masters of Business Administration, for key managers throughout the European organization. Staff of Canon Europe with the appropriate qualifications (e.g., working experience, education) will be selected to join a one year MBA program at the Nijenrode University in the Netherlands. The program will emphasize management development and international business developments in Europe.

The senior management of Canon Europe expects that this kind of program will make a major contribution to further developing the potential qualities of its staff. HQ considers this program very important for the continuing development of Canon Europe and thinks that this program will add to its ability to deal with the challenges and complexities of its business.

The main focus will be on Canon's own businesses - and more specifically - marketing skills. However, other fields to be addressed in the MBA course are market communications, logistics, sales, finance & accounting, manufacturing, etc. Moreover, the program should result in creating a network with fellow students throughout the company. As stated by Mr. Tanaka: "The program represents a very strong push towards a different way of managing our business and increasing the mutual understanding between our key managers."

Adapted from Canon in Focus, Volume 38, October 1995.

Exhibit 8.5: Canon-Nijenrode MBA Program.

managers in Europe (see Exhibit 8.5). "The program," as stated by Mr. Tanaka, "represents a strong push towards a different way of managing our business and increasing the mutual understanding between our key managers."

By creating differences in the development and socialization of Japanese and non-Japanese employees, Canon has created an additional barrier to share knowledge. Language, values, and customs will always hinder inter-subsidiary integration, but a shared corporate culture can assist front-line managers in their attempt to overcome these barriers. A management development program including key managers from all over the world could stimulate and facilitate intracorporate knowledge sharing on a global scale and institutionalize a stronger corporate identification in the non-native part of the organization. A strong corporate culture which increases behavioral consistency throughout the global organization can be of significant value in achieving tsushin, in other words trying to understand each other and sharing internally available expertise and experience successfully.

TOOL #2: FLEXIBLE FORMATION OF PROJECT TEAMS

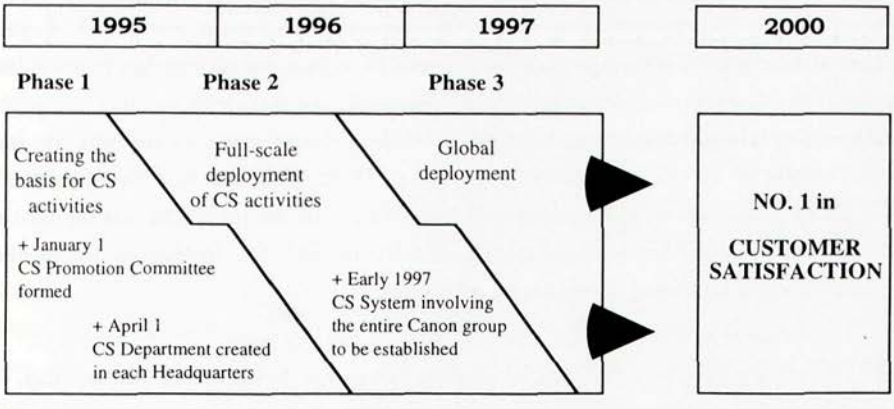
Canon often formates taskforces after identifying a particular knowledge need or generic business problem in its organization. These taskforces tend to cross both functional and divisional boundaries and have proved to be effective tools in stimulating the exploitation of knowledge exploration activities. A taskforce is a temporary structure formed to accomplish a specific, well-defined and complex task that involves a number of organizational subunits (Robbins, 1990: 348) and can be a suitable tool for resolving significant decision situations regarding future happenings (Altier, 1986). Setting product development priorities, selecting target markets, determining organizational structure, choosing product design, making pricing and positioning decisions, planning new product introductions, choosing capital equipment and facilities, determining strategic direction, and making systems decisions are some typical examples, as enlisted by Altier (1986: 69), where a taskforce could be a productive tool. Particularly within Canon where people still think too often in terms of products and hesitate to transcend divisional boundaries, a cross-divisional taskforce is helpful in crossing these lines.

In contrast to the lightweight project teams that are often prevalent in Western companies, Canon's task forces are often extremely well-equipped central groups with much authority. These taskforces are often chaired by senior top management, given high visibility in the organization, and getting top management's full commitment. As a consequence, taskforces possess in many cases a high status in the organization and retain the power to effectuate organizational change. Top management expects from these taskforces a concrete, well-thought-out course of action. Moreover, top management ensures that these taskforces are well-known throughout the Canon organization to make clear to all its employees where worldclass know-how on a particular issue resides. Where particular knowledge exploration activities are proceeding and where the know-how on a particular issue is developed,

accumulated, and stored is emphasized by Canon's top management and communicated throughout the corporation. Duplication of exploration work is thus reduced, the best people in terms of relevant know-how and experience are brought together, and the exploitation of carefully developed business solutions are ensured based on the consensus-building abilities of these taskforces.

One of the most successful taskforces which has been widely described in the literature is the multidisciplinary and cross-divisional team that was assigned to develop the "AE-1 of copiers" in the beginning of the 1980s (Ghoshal and Ackenhusen, 1992; Goold, Campbell, and Alexander, 1995). The AE-1 was a very compact single-lens reflex camera that used a microprocessor to control electronically functions of exposure, film rewind, and strobe and was launched with great success in 1976 on the basis of its size and user friendliness. Inspired by the successful launch of this camera, Canon formated Taskforce X. This taskforce got the assignment to develop a new copier which would be as innovative and successful as the AE-1 camera. Taskforce X comprised around 200 members divided over two development groups and six staff groups. Building upon the firm's resources, dedication, and commitment, this taskforce came up eventually with a new revolutionary personal copier. The developed copier was the smallest, lightest copier ever marketed and reinforced Canon's leadership in the copier market.

A more recent implemented taskforce is the Customer Satisfaction Committee which was set up in January 1995 (see Figure 8.8). Canon wanted to add customer satisfaction to its technology-oriented policy and positioned its corporate activities as an axle, with a technology wheel at one end and a customer satisfaction wheel at the other. The committee comprised 28 members, was chaired by Hiroshi Tanaka, executive vice president of Canon Inc., and equipped with both budgetary and decision-making power. Apart from these 28 members, 26 customer satisfaction promotion departments were started every division to promote understanding of the committee's activities. Canon Europe charged the heads of the CS



Adapted from Internal Documents.

Figure 8.8: Customer Satisfaction Activities Calendar.

Promotion Departments with leading the deployment of CS activities within their respective divisions and headquarters. The CS Promotion Departments were split up in five working groups: CS Vision, CS Product Planning, CS Quality, CS Sales/Service, and CS Evaluation System.

Canon stimulates intracorporate knowledge sharing through the flexible formation of multidisciplinary and cross-divisional taskforces in order to bring both awareness and interest barriers down. By giving high visibility to exclusively assigned knowledge exploration responsibilities, it becomes well known where particular knowledge resides. Moreover, the subsidiaries are not allowed to invest in the particular problem area and hence the exclusivity makes them dependent on and eager to adopt the outcomes of the taskforce's development work.

TOOL #3: REGULAR INTERNATIONAL MANAGEMENT MEETINGS

In general, Japanese are used to communicate regularly and intensively with each other and written communication is, in a sense, a last resort for Japanese business executives. Japanese, if possible, will prefer to talk directly with another individual or group and therefore tend to spend a great deal of time in management meetings. The physical gathering of managers is of particular importance for the Japanese because they tend to enrich their communication by using a figurative language full of metaphors and by using many body movements (Nonaka, 1995). This non-verbal way of communicating contributes to their strength in transferring tacit knowledge. Because non-verbal communication is such a continuous, subtle process among the Japanese, it is an important part of the total communication process.

In communicating with their Western colleagues, however, Japanese have difficulties to get the same richness of knowledge across in an effective way. Both language and cultural barriers affect this process and hence international management meetings have always been scarce until recently. In its strive to build a more integrated European organization, Canon has significantly intensified the gathering of its international management since 1993. Regular international management meetings are now arranged by region, product group, function, and management level. International management meetings like the presidents meeting, the annual general meeting, the G5 marketing meeting[6], and the product planning meeting are now becoming important occasions to gather information, share ideas, and discuss on particular issues[7]. These gatherings of key managers in Europe help to inform colleagues on existing knowledge resources and knowledge exploration activities and tend to increase the level of trust and understanding among the managers involved.

---

6 The G5 marketing meeting is a gathering of the marketing managers of the UK, France, Germany, Italy, and the Trade Organization with the coordinators and liaison members of the European headquarters.

7 All the 13 interviewees mentioned the management meeting as one of the most important tools to stimulate and facilitate intracorporate knowledge sharing.

"Although restricted by a topic-related agenda for this kind of meetings" as stated by one manager, "a significant part of our time we discuss what others would be interested in knowing before discussing or making decisions as suggested by agenda. [...] Often, some colleagues are asked to give a presentation on current developments in their units or on a particular business issue that could be of interest for all the participants. [...] Quite often, one splits up the total group involved in a meeting (ranging from 25 to 60 managers) in several workgroups to stimulate interaction between the participants. These workgroups are asked to study on and discuss a certain business issue and to present their conclusions in a plenary session." "Besides the direct transfer and exchange of knowledge," an other manager added, "the participants have an opportunity during these meetings to learn their colleagues and develop some informal relationships throughout the European organization. Moreover, they are enforced during those international management meetings to think beyond the boundaries of their own organization and conceive the opportunities of thinking and operating on a Global or European scale."

TOOL #4: INFORMATION COLLECTION & DISSEMINATION ROLES

Coordinators, liaisons, and boundary spanners, as argued in the theoretical part of this study, are organizational roles which could assist front-line managers in their search for knowledge. Individuals or teams occupying these roles bring front-line managers together in their attempt to stimulate intracorporate knowledge sharing. Canon also created and institutionalized many liaison roles in its organization, but gave them sole responsibility to effectuate knowledge exchange efforts. So in contrast to what we assumed in the theoretical part of this research project, Canon does not believe that the size and complexity of its organization inhibit an active role for corporate management in the initiation, effectuation, and application tasks of the intracorporate knowledge sharing process. Instead of adopting a kind of decentralized network organization, Canon's top management is convinced that the hierarchical way of directing its independent sales and marketing companies suits its needs today and in the near future. Front-line managers are responsible for taking action, while the European headquarters remains solely responsible for taking the lead in solving and sharing key business issues. Mr. Tanaka stated with respect to inter-unit communication lines that "there is no communication between the companies directly. All communication needs to be routed through the European headquarters and for this purpose we have assigned a large cadre of liaison members."

Although Canon Europe works on the implementation of a more advanced information system to link employees and resources more easily in the future, the basic philosophy will remain that the marketing and sales coordinators at the headquarters are always involved in inter-company knowledge sharing. "Only in this way," Mr. Tanaka stressed, "we make sure that we keep well informed about the key business issues and the concerns of our company managers. By being well informed we ensure that we are able to control the performance of our companies and react quickly to their key problems." One manager of European origin, however, also believes that this eagerness to keep closely in touch with the information flows

in the organization is something which is strongly related to the personal traits of the Japanese. He stated: "The Japanese, in general, place much value on learning and perceive their information as the main 'power base' underlying their position in the organization. [...] This thirst for information, however, makes them antipathetic regarding the stimulation and facilitation of decentralized communication between the companies. They want to be involved to be able to keep their information up to date."

Consequently, within Canon there are at least two persons responsible for the coordination and management of the information flow for each of the six product areas (i.e., Cameras, Copiers, Peripherals, Business Systems, optical products, chemical products) and at least one person per geographic area. The marketing and sales coordinators are visiting operating companies, on average, more than 50 days each year to learn about their concerns and the most recent developments. Besides company visits the liaison members use telephone and fax to communicate with the companies and their colleagues of Canon Inc. Although an E-mail application is now available for communication with the HQ in Japan, Canon has not implemented advanced communication tools yet to facilitate the communication with and between its companies.

TOOL #5: JAPANESE EXPATRIATES ON KEY POSITIONS

Traditionally, Canon has operated using a significant cadre of expatriates in its overseas markets. By assigning Japanese managers to most of the liaison positions and top management functions at the headquarters, Canon tried to make sure that not only the link but also the quality of the communication with Japan would not suffer too much from the physical and cultural distance. As argued before, Japanese value the "richness" of their communication. Both oral communication and body language are used to make themselves understood and this process is harmed if non-Japanese employees are involved. Expatriation is a worthwhile attempt to reduce the media barriers and hence facilitate the intracorporate knowledge sharing process. Expatriates have valuable knowledge on the systems and processes of the home office. They possess a network of informal relationships and are knowledgeable on where knowledge resides in the home country. For this reason, Canon often has more than 200 of its managers working in the European region. These managers occupy many of the top management and liaison functions at headquarters and some of the general management functions in the main operating companies and research centers throughout Europe.

The backdrop of such a large amount of expatriates, however, is that localization strategies can be less smoothly formulated. Without any doubt, local management tends to understand the local demands and developments much better than their Japanese colleagues. Although the Japanese expatriates do their best to operate as close to the market and society as possible, the cultural background of the Japanese obstructs a full understanding of the European circumstances. Perceptions are formed by one's values and norms and Japanese differ strongly in this respect from many nationalities in Europe. On the basis of the difficulties to collect,

aggregate, and integrate a well-grounded knowledge of local markets, Canon has started to internationalize its management in Europe during recent years. Accepting the growing complexity to communicate, Canon appoints local management in its subsidiaries wherever possible and integrates European managers in its top structure.

8.6 SUMMARY AND CONCLUSIONS

Canon's main competitive and corporate strength is represented by its leverage of technological excellence. By concentrating research & development and production activities in or close to the home country and selling products through wholly or partially owned sales branches throughout the world, Canon deliberately institutionalized a "technology-push" instead of a "technology pull" strategy. Many successful products were launched based on Canon's ability to improve existing product concepts. Intracorporate knowledge sharing requirements were strongly reduced based upon a well orchestrated export and Original Equipment Manufacturer (OEM) business. The major part of Canon's product and process knowledge was concentrated in a product embodied way and exploitation of Canon's knowledge base could in this respect simply be improved by extending the sales volume of Canon's end products.

Today, however, Canon is forced to rethink its traditional export strategy. Consumers are demanding more customized products as European and Japanese buyers start to differ significantly in their product feature preferences. Moreover, most of Canon's products are maturing and new market-oriented product innovations are becoming a necessity. On the short term, Canon has reacted to these challenges by advancing its abilities to collect, share, and aggregate market information on a European scale. In this way, Canon wants to go beyond the leverage of its technological excellence towards a cross-fertilization with the market knowledge residing in Canon's marketing and sales companies. On the longer term, Canon is inclined to believe that "overseas" product development and production activities have to be extended. Internationalized and scattered product and process expertise, however, imply the need for a drastic change of the organizational context to increase the actual level of intracorporate knowledge sharing, which calls for an extension of the set of management tools. A major business transformation process is necessary, especially because Canon's administrative history in Europe is one of operating through highly independent, sometimes partially owned distributors with whom product orders and invoices were the only lines of communication.

In the final section of this chapter we discuss the outcomes of a review of Canon Europe's management capabilities regarding intracorporate knowledge sharing. The implemented management tools stimulating and facilitating intracorporate knowledge sharing are enlisted and confronted with the presented management tools of the knowledge sharing management systems in the theoretical part of this study. By reviewing whether, which, and how many

management tools of these management systems can be discerned within the confines of the Canon organization, some tentative conclusions are formulated on the barriers still obstructing and hindering the intracorporate knowledge sharing process in the Canon organization in Europe.

PROPOSITION #1: KNOWLEDGE SHARING AWARENESS SYSTEM

Historically, Canon perceived its European companies primarily as sales outlets and not as valuable sources of expertise which could be exploited on an international scale. The companies were given a great extent of operational leeway to sell their products in their own country and European headquarters operated more or less as a European warehouse. Since the beginning of the 1990s, however, perspectives and functions are changing. Canon Europe is building a more integrated group of subsidiaries which is able to let its voice heard to Canon Inc. Notwithstanding the current variety in the way each company defines its own business and processes, many of the problems of the companies in, for example, the IT, logistics, and marketing area are shared. These common issues are worthwhile to evaluate considering possibilities to unite development resources, coordinate and complement exploration activities, and exploit existing solutions and best practices. In practice, however, a focus on existing differences between the companies is still obstructing the identification of many intracorporate knowledge sharing opportunities. The companies are perceived to be too idiosyncratic to come up with standardized solutions, and without an awareness of the existing communality knowledge transfer efforts will be hard to initiate.

Notwithstanding the blocking influence of the emphasis on differences instead of shared elements between the companies, management of Canon Europe's headquarters is progressively trying to stimulate the detection of cooperative relationships on a European scale. Since 1993, international management meetings have been regularly arranged to talk on topics as past achievement, market developments, and prospective product introductions. Moreover, workshops and seminars have been organized on a regular basis on particular areas of interest for the whole group. Marketing and sales coordinators, primarily Japanese, have been institutionalized to operate as central experts who possess knowledge on current trends, have a direct link to Canon Inc., and could function as a liaison between knowledge donor and knowledge recipient. With respect to the registration and codification of knowledge items, a number of initiatives have been taken by corporate management to improve the existing situation. The European corporate planning department, for example, started in 1995 with a newsletter, including general information on market developments throughout the region, innovative solutions to general problems, and descriptions of European or local development projects.

In contrast to one of the key assumptions of this research project, the dominant perspective at the top of the Canon organization is that all knowledge sharing initiatives should be coordinated and effectuated by the managers of headquarters. The liaisons do not take a

facilitating role, but are very dominant and want to be actively involved in the adoption, preparation, and effectuation of intracorporate knowledge sharing projects. While we assumed that the complexity of many multinational enterprises inhibits a direct role for corporate management in establishing linkages between knowledge donors and knowledge recipients, Canon's top management has no intention to limit itself to the more indirect tasks of stimulating and facilitating. "By being involved," Mr. Tanaka argued, "we circumvent a situation where certain problems are hidden away. [...] By being involved, we might be able to detect the big issues and react pro-actively to these issues in other companies. [...] This top-down approach will not change. We are happy with the current way of sharing our knowledge. The hierarchical way works well and does not need to be adapted in the near future. [...] People in the center are concerned with knowledge issues, the local responsibility is in taking action." In line with this view, the existing and the prospective information systems within the Canon Europe organization connect the various companies to the headquarters and not to each other.

THEORETICAL PART	**KNOWLEDGE SHARING AWARENESS SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Knowledge Codification, Registering, and Storage Networking Assigning Knowledge Exploration Responsibilities Institutionalizing Knowledge Sharing Intermediaries Implementing Internal Benchmarking Procedures	THEORETICAL PART
EMPIRICAL PART	CANON'S MANAGEMENT TOOLS - Liaison Members (since 1993 more dominant headquarters function and hence more dominant role for the Coordinators); - Formation of taskforces for prevalent knowledge needs; - Management meetings (e.g., Presidents meeting, product planning meetings) bringing together key managers of the Canon Europe organization; - Management training sessions, workshops, and seminars; - Newsletters (e.g., Canon Chronicle, Canon in Focus, What Strategy!).	CANON: REMAINING AWARENESS BARRIERS (1) Knowledge is widely scattered throughout the organization, is often human embodied, and no systematic procedure or incentive exists yet to explicate and registrate knowledge items. (2) Although the subsidiairies still differ significantly in many respects of their business, the prevalent communalities and hence opportunities to share knowledge are often not perceived. (3) Liaisons are bounded by their own constraints (e.g., time, observational) and hence are often unable to identify and perceive all intracorporate knowledge sharing opportunities. Canon, however, has exclusively assigned the responsibility to initiate knowledge sharing efforts to these liaisons. (4) Inter-subsidiary linkages are rare and are in most cases intermediated by HQ management. Direct links betweeen the business units could make front-line managers aware of the existing communality and confront them with valuable knowledge items which could advance their own operations.	EMPIRICAL PART

Table 8.4: The Knowledge Sharing Awareness System.

So Canon Europe gradually implements some of the attributes of a knowledge sharing awareness system. Many awareness barriers, however, still remain. The lack of a systematic procedure or incentive to codify or register valuable knowledge items makes knowledge sharing opportunities very difficult to detect. Moreover, liaisons are bounded by their own constraints (e.g., time, observational) and hence are often unable to perceive and identify all intracorporate knowledge sharing prospects. A network linking the front-line managers directly could be more dynamically responsive for managers who have a need to know or who control valuable knowledge to exploit.

PROPOSITION #2: KNOWLEDGE SHARING PERSUASION SYSTEM

Canon Europe has not invested on a large scale in the implementation of management tools to increase the willingness of its front-line managers to share knowledge. Although the awareness barriers have a more obstructive influence than the interest barriers on the initiation of intracorporate knowledge sharing projects, the independent histories of the local companies has resulted in a resistance to corporate interference. Particularly the "big four" (UK, Italy, France, Germany) operate quite independently and are not eager to accept policies that limit their degree of freedom. The local companies are obliged to sell Canon's products and a maximum of operational leeway has been created to do whatever is necessary to sell Canon's products throughout the region. Overall, however, we can observe that the willingness to adopt and transfer knowledge is growing in spite of limited investments in the development of a Knowledge Sharing Persuasion System. Due to more regular and intensified international management meetings, workshops, seminars and the like, a corporate identity is slowly growing in the Canon Europe organization, increasing the eagerness of the companies towards existing knowledge items and exploration activities in the corporation as a whole.

Intracorporate knowledge sharing is not explicitly rewarded in the Canon organization and no intention exists to institutionalize monetary or other kinds of incentives. In this respect it is valuable to stress the difference in orientation between Japanese and Western managers. As described by Whitehill (1991), Japanese business people cooperate and compete with one another simultaneously to contribute to the upper-level goals of the group as a whole and, by performing better than other team members, get the appreciation of higher level management on the longer term. Japanese are more eager to gain the more desirable assignments and special considerations in long-term career development rather than at getting an immediate promotion or salary increase. Japanese place a high value on things like honor, trust, and personal worth. Each Japanese seeks out his own personal source of value often transcending value of a monetary kind. Consequently, Mr. Tanaka, confronted with our question regarding the existence of incentives for sharing knowledge, looked surprised and stressed that there was no need at all to reward his managers in monetary terms. "Managers are eager and happy to share their knowledge with their colleagues," Mr. Tanaka emphasized. "We feel no need at all to implement incentives in this respect."

THEORETICAL PART	**KNOWLEDGE SHARING PERSUASION SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share
EMPIRICAL PART	CANON'S MANAGEMENT TOOLS - Incidentally, centralized projects are initiated by CENV headquarters to concentrate development resources and ensure the optimal exploitation of the knowledge exploration activities. - Subsidiaries are increasingly stimulated to provide CENV with information on trends in their market and business environment. Moreover, their input is asked regarding the perceived needs of local consumers. - Coordinators at the HQ inform front-line managers regarding opportunities to share particular knowledge items and stimulate them to participate in these endeavours.	CANON: REMAINING INTEREST BARRIERS (1) The independent background of the companies instills an urge to defend the own identity of the organization and keep as much local autonomy as possible. This is particularly true for the four "big ones" (Germany, France, Italy, UK). (2) Top management does not perceive the management of intracorporate knowledge sharing as one of their top priorities and this affects the initiation of knowledge transfer efforts. (3) Canon Europe puts no incentive on the initiation of intracorporate knowledge sharing efforts and hence employees are not explicitly rewarded in this respect. (4) European managers are not affected by a dominant corporate culture and hence no or a limited corporate identity is felt by them.

Table 8.5: The Knowledge Sharing Persuasion System.

Overall, we can conclude that some management tools of a knowledge sharing persuasion system can be detected, but that various interest barriers still obstruct the initiation of intracorporate knowledge sharing efforts. The independent background of the operating companies instils an urge to defend their own identity and keep as much local autonomy as possible. Moreover, Canon puts no tangible pressure on both knowledge donors and recipients to transfer and adopt internally available knowledge. Canon thinks that all employees are eager and willing to contribute to the well being of the corporate whole and is not willing to accept the fact that Western managers tend to be more individualistic and motivated by monetary rewards than their Japanese colleagues.

PROPOSITION #3: KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM

Canon Europe experiences major problems in effectuating knowledge transfer efforts successfully. Several complexity barriers still prevail and a very limited number of steps have been taken by corporate management to reduce them. Besides the lack of any incentive or pressure to reduce the tacitness or equivocality of the available and developed knowledge

items, knowledge sharing is significantly complicated by the restricted managerial attention and actions regarding harmonization. Each company active under the "umbrella" of Canon Europe NV, as argued before, has its own independent history and these differences in administrative heritage have resulted in strong differences in the administrative and operational procedures and activities. Each company, for example, defines its business in a different way, utilizes different information systems, and has developed its own language in terms of data-elements, information structures, and conceptualizations. This heterogeneity in prior knowledge obstructs communication notably and hence limits the successful transfer of knowledge within the confines of the Canon organization.

The influence of Japanese expatriates on the heterogeneity dimension in Canon's European organization is ambiguous. On the one hand, by placing Japanese expatriates on most of the key nodes in the European information network, communication and information exchange both within Europe and between Europe and Japan is facilitated. Japanese are used to communicate regularly and intensively with each other and language and cultural barriers would affect this process. Japanese, following Nonaka (1995), enrich their communication by

THEORETICAL PART	**KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing*	RELATED MANAGEMENT TOOLS Knowledge Abstraction & Codification Increasing User Involvement & Triability Establishing a Corporate-Wide Language Arranging Regular Management Meetings Dominant Corporate Culture Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share
EMPIRICAL PART	CANON'S MANAGEMENT TOOLS - A significant part of Canon's knowledge reservoir is embodied in their products. By exporting the products, knowledge exploration activities are exploited and the complexities of transfering knowledge circumvented; - Training programs and workshops reduce the heterogeneity of prior knowledge (see also Canon- Nijenrode MBA programme); - Japanese expatriates occupy the key nodes in the European Information Network. This reduces the complexity of the communication between a key node and Canon Inc. and between the key nodes; - Regular management meetings, seminars, workshops create gradually a corporate identity and more trust between the front-line managers.	CANON: REMAINING COMPLEXITY BARRIERS (1) Knowledge remains of a tacit nature and highly equivocal due to the lack of codification, explication, and demonstration practices. (2) The differences between the companies in the definition of the businesses and core processes strongly complicate the intracorporate knowledge sharing process. (3) Besides the intercultural difficulties between European managers, the intracorporate knowledge sharing process is often complicated due to the involvement of Japanese managers. (4) Knowledge donors and recipients are not stimulated to share knowledge by monetary rewards or a strong corporate culture. (5) The level of trust inherent between the Japanese in Canon organization is quite high. Trust between European managers is growing due to regular formal meetings.

Table 8.6: The Knowledge Sharing Complexity Reduction System.

using a figurative language full of metaphors and body language. Richness which gets across less effectively in the communication with their Western colleagues. On the other hand, the Japanese expatriates active in the European organization are a distinctive group which acts on a distance from the rest of the employees. The Japanese cluster strongly, communicate with each other in their own language, often experience difficulties in making themselves understood to their European colleagues, and hence create an additional complexity barrier to effectuate intracorporate knowledge transfer efforts.

A corporate initiative which would have the potential to reduce some of the heterogeneity in prior knowledge was announced at the end of 1995. Corporate management launched the one-year Canon-Nijenrode Masters in Business Administration (MBA) program in which a selected group of managers of Canon Europe could participate. Senior management expected that this kind of program would make a major contribution to further developing the potential qualities of its staff. Headquarters considered this program very important for the continuing development of Canon Europe and was convinced that this program would add to its ability to deal with the challenges and complexities of its business. Moreover, the program would create a network of fellow students throughout the company and would increase the mutual understanding between them. "The program," Mr. Tanaka argued, "represents a very strong push towards a different way of managing our business."

Mutual understanding has also been growing in recent years due to the increased number of international management meetings, seminars, and workshops. The growing number of management meetings in Canon Europe has established a stronger corporate identity that motivates people to cooperate and stimulates them in believing that their colleagues will make efforts consistent with mutual goals. Apart from the arrangement of more regular management meetings, however, no deliberate actions have been taken regarding the level of motivation and trust. Because trust is an intrinsic element of Japanese cultures and motivation is primarily defined on the group level, the complicating influence of both factors are restricted in a Japanese context, and are therefore less perceived as an issue by the Japanese. The fact that many nationalities in Europe strongly appreciate a contractual basis before they trust a partner and the fact that they tend to be more strongly motivated by monetary rewards than their Japanese colleagues has not changed the perspective of Canon Europe's Japanese top management in this respect.

Concluding, we can state that complexity reduction is achieved by integration of a significant part of Canon's expertise in the export of their equipment, tooling, intermediate goods, and end products. However, Canon still experiences significant problems in managing the efficient and effective effectuation of knowledge sharing efforts throughout its organization. With respect to the tacitness and equivocality of knowledge, the heterogeneity of prior knowledge, the level of motivation, and existence of trust between the front-line manager of the Canon Europe organization, only a few, mostly unintended, actions have been taken. Consequently, the hindering influence of the complexity barriers is still quite severe which

makes the leverage of knowledge items scattered throughout Canon Europe's organization in most cases a rather complex assignment.

PROPOSITION #4: KNOWLEDGE SHARING MEDIA SYSTEM

"Communication," as stated by Whitehill (1991: 212), "is a uniquely difficult and challenging aspect of the Japanese management system. Communication in Japan, whether in-company, between companies, or on an international level, is a particularly hazardous affair both because of the language itself and the inner-directed orientation of the people." In making a trade-off between written, oral, and non-verbal ways of communication, writing is, in a sense, a last resort for Japanese business executives. If possible, they will choose to talk directly with another individual or group. Consequently, a great deal of time and attention in Japanese firms is devoted to personal communication, in which non-verbal communication (a continuous and subtle process among the Japanese) represents an important part of the total communication process. Overall, however, one can conclude that Japanese have difficulties to make themselves understood to foreigners (Ohmae, 1987: 43).

The implications of these general characteristics of Japanese communication can also be observed in the Canon organization in Europe. Group or person-to-person meetings are regularly arranged and very time-consuming. Japanese is the normal language during high-

THEORETICAL PART	**KNOWLEDGE SHARING MEDIA SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation*	RELATED MANAGEMENT TOOLS Knowledge Transfer Skill Development Advanced Communication Technologies Expatriation Strategy
EMPIRICAL PART	CANON'S MANAGEMENT TOOLS - Intercultural management skills are still very limited, but are now gradually developed during the training programmes, international management meetings, seminars, and workshops; - Electronic mail and videoconferencing system is effective between Canon Inc. and CENV headquarters. Canon Europe is developing an Electronic Bulletin Board; - Canon Inc. has always a large number of Japanese expatriates active in its "overseas" regions.	CANON: REMAINING MEDIA BARRIERS (1) Canon Europe starts just recently to operate more strongly on a European scale. Consequently, the front-line managers are still lacking the prerequisite transfer and adoption skills. Moreover, intercultural management skills are still very limited. (2) Canon Europe is definitely more concerned with the existence of an appropriate and hence advanced communication line with Canon Inc. than with the companies or between the companies. The subsidiaries are not linked with each other via advanced information or telecommunication technologies.

Table 8.7: The Knowledge Sharing Media System.

level management meetings which excludes European managers from participation or enforce them to learn the Japanese language. Many Japanese expatriates, as stated before, occupy the key nodes in the European information network and while other companies are implementing or intensively using electronic variants to facilitate communication, Canon's main way of communication remains face-to-face contact complemented by telephone and fax. Although the increased number of international management meetings gradually reduces the cultural distance, intercultural skills are still limited.

So we can state that within the prevailing situation of Canon Europe with respect to the management of media barriers, appropriate media and sufficient resources are available to facilitate a limited number of communication lines perceived as important by Canon's top management (e.g., Canon Inc. - Canon Europe NV). Latent communication lines which reside unstructured lower down the hierarchy, however, lack these resources and need to exploit conventional communication tools like telephone, fax, and company visits.

Concluding, it is interesting to refer to a publication by Hedlund and Nonaka (1993) who specifically address the primary distinctions of knowledge management practices in the West (i.e., Europe, USA) and Japan. Hedlund and Nonaka (1993: 137) argue that "The ideal Japanese industry [...] should be one with readily-existing and articulated input (components and technology elements), but entailing, a throughput process with strong tacit elements, and requiring much intra and interorganizational dialogue. [...] Much of this implies success in relatively 'mature' technological fields, or at least fields where results have 'materialized' into components, formulas, etc." Moreover, Hedlund and Nonaka indicate that Japanese are weaker in fields where sales of products have to be complemented with complex service and other non-standardized ingredients and where integration of very large systems and hence complex system management is a necessity. The reliance on internal dialogue, largely at the tacit level seems to be less effective in more dynamic, non-standardized businesses and when complex tasks have to be coordinated. The Japanese model of throughput is simply too time-consuming in these fields.

Our findings are strongly in line with the argumentation of Hedlund and Nonaka (1993). Canon has been and is still successful in the European region based on its knowledge management capabilities in the native part of its organization. Home-based research, development, and production processes have gained from talent and a strong tolerance for working with tacit knowledge. Tacit knowledge is shared through regular and intensive interaction, allowing transfer and expansion of those knowledge items which are difficult to articulate such as market feeling, skills, and capabilities. Moreover, the Japanese orientate themselves and are motivated more than their Western colleagues at the organizational and group level and hence put more emphasis on the interorganizational domain in knowledge management. Quality circles, ring systems, long working hours followed by collegial after-hours talk and drinking are all mechanisms to encourage and facilitate sharing of knowledge

and which have led to "powerful" and efficiently manufactured advancements of existing product concepts.

In the global marketplace, however, Canon has to compete in more complex and more dynamic business environments. Canon's products are more and more evaluated on their adaptation to continuously changing and regionally differentiated consumer demands. Moreover, many of the traditional products are maturing or need to be merged in the "integrated business system" product concept. As a consequence of these trends, Canon is challenged to develop an organizational capability that exploits its technological excellence even when a large amount of product development, interpretation and prototyping is still to be done. To succeed on all these aspects, Canon must find a way to cope with geographically scattered market knowledge in its organization and achieve a cross-fertilization between technology-based expertise and available information on the needs and developments in the international marketplace. Moreover, more effective, efficient, flexible, and less time-consuming knowledge sharing efforts should be stimulated and facilitated in order to exploit cross-divisional synergies.

Canon Europe NV thinks, in line with our theoretical arguments, that a further decentralization of business activities is inevitable on the longer term. A concept like market feeling is difficult to articulate and communicate, especially in an organization in which the key nodes of the information network are occupied by Japanese managers. Japanese have problems in making themselves comprehended and in gathering know-how from "foreigners." This foreign intellect, however, is essential in product innovation, product differentiation, and local adaptation activities which are prerequisite for the survival and competitive success in European and other non-Japanese markets.

9

ITT World Directories, Inc.

A Major Transformation Effort to Bring Down the Inherited Barriers to Cross-Unit Cooperation

"We all agree and acknowledge that ITT World Directories lacks a history of strong cross-unit cooperation. [...] To survive, however, we need to unite our forces and challenge our current conception of working together. A dramatic and fundamental change is necessary which requires a major investment in both financial and emotional terms of all our employees."

- A. Cohen, ATLAS Project Leader, ITT World Directories, Inc.

9.1 INTRODUCTION

In the beginning of 1995, ITT World Directories Inc., a world expert in international directory sales and publishing, was provoked to transform its traditional philosophy of managing its geographically scattered business operations. Dramatic changes in the contextual and task environment combined with a strategic reorientation process of the corporation as a whole[1], enforced ITT World Directories to establish an organization which would be capable to react with great flexibility to intensified competition, changes in regulation, technological developments, and altered consumer demands. The objective was to create "mean and lean" operations in each country to optimize the financial performance of the affiliates. Moreover, ITT World Directories' business transformation process was aimed at making the total group more than its subparts. Corporate value, as was assumed by ITT's top management, could be generated by merging operational activities and leveraging the existing knowledge in terms of experience, skills, operating systems, and product innovations. The prospective "corporate

[1] In June 1995, the board of directors approved and announced a long-studied plan to divide ITT into three separate publicly traded companies: an insurance company, an industrial group, and a hotel and gaming company. The corporation which for decades embodied the idea of the conglomerate rounded off an era by breaking itself up.

umbrella" should be able to strengthen the competitive strategies of its subsidiaries and enable an internationalization strategy to further leverage the corporate resources.

The managerial alteration implied a dramatic rift with the past. Synergy has never been an issue within ITT World Directories. During the previous 25 years, each company governed by ITT World Directories has been highly successful and profitable based on a legally protected monopoly position in a highly attractive Yellow Pages market. The governmentally granted monopoly positions meant that competitive forces were lacking and that efforts could be focused on "creaming-off" the full potential in terms of top and bottom-line improvements. Business diversification, product development, cost reduction, and process transformation projects were, in general, locally initiated and effectuated. Attempts to integrate more strongly have never led to any tangible results and often failed due to the existence of numerous "hidden agendas." As one manager stated: "In the past, we have always acted as if our units differed too much to be comparable. In reality, however, I honestly believe that our business processes comprise for more than 80 percent the same activities. We only define our businesses differently and put emphasis on other aspects of our operations."

Consequently, by acknowledging the dominance of communality over diversity, ITT World Directories provoked its administrative heritage and confronted itself with the complex task to adapt its management processes both vertically, between the center and the companies, as well as horizontally, between the companies. The most important challenge was not to redefine these processes, but to make them work. A feeling of distrust, caused by the corporate effort to "squeeze" the most out of its Yellow Pages businesses, resided strongly lower down the hierarchy. In line with the management philosophy of the ITT Corporation, ITT World Directories has always operated more or less as a financial holding company[2] with efficient coordination among its business units being largely a matter of disciplined resource allocation. An advanced and well elaborated financial control system assisted corporate management in monitoring their ongoing capital commitments. The threats of disposal or enforced cost cutting operations were always prevalent and dependent on regular assessments whether or not the expected returns of a particular business activity still compensated capital for the involved risks and opportunity costs. In this sense, the corporate office served a function similar to the external capital market. Corporate management did not feel a real need to utilize and exploit the particular coordinative properties of the governance structure. Some rare attempts in the past to stimulate and facilitate the leverage and exploitation of knowledge exploration activities failed dramatically (see Exhibit 9.1 for an example).

---

2 The financial holding management style is one of the three corporate management styles as presented by Goold & Campbell (1987), meaning that the company is built up from a portfolio of businesses which are all evaluated on their financial performance. The various business units are functioning in an autonomous way and all have unique identities. In this way a tension exists within the company to disintegrate. When business units are only financially and not emotionally connected to their parent company, business units will try to build "walls" around their own operations and will try to function with as little as possible interference of other people within the parent company.

ITT Publitec:
ITT WD's Service Centre on Information Technology

Information Technology (IT) is a strategic tool necessary for the information delivery business. ITT World Directories considers IT to be a key factor in the growth of a successful business. Business-oriented management methods, strategic focus for technology investments, and building a sound technical architecture are succcess factors to support IT. ITT World Directories, however, has a traditional culture of unit independence. Hence, unit systems have evolved independent of each other and were not designed to be easily adapted to other units. The environments within which the systems are developed are all different. In many cases, similar systems have been developed in multiple units.

At the end of the 1980s, ITT World Directories made an attempt to centralize development by institutionalizing a Service Centre, ITT Publitec. ITT Publitec's mission was to develop systems and software products that provided functionality to improve efficiency and effectiveness of ITT World Directories businesses. Moreover, ITT Publitec would scan the developments in the IT field and monitor emerging requirements of the affiliates. A distinction was made between three functions of the central development unit:

(1) Research & Development - the Central Unit would monitor technological and business trends and provide ITT World Directories with general awareness and initial evaluations of relevant developments under the guidance of ITT WD.

(2) Specialist Skills provider - The Central Unit woul provide specialist skills to work in the units under the control of the units who would fund the activity.

(3) Software House to carry out one-off developments on behalf of a single unit. The unit was expected to fund this development.

Attempts to centralize research and development in the IT area, however, failed. ADTEC, the proposed common system which was developed by ITT Publitec, was not successful and is used today in only one unit. Although a communality study in 1993 has shown that there are significant opportunities for units to jointly develop systems and share expertise, duplicate developments of very similar systems still exist within ITT World Directories. Knowledge sharing is rare and hindered and complicated by numerous interest and complexity barriers (the awareness barriers are low due to the limited size of the ITT World Directories Group).

Interviews with several information technology managers within ITT World Directories, indicated that the main problems with Publitec were caused by a lack of user involvement and distance from operations. Athough Publitec developed the most advanced tools, systems, and products, they resided too much in their "ivory" tower and lost the "feeling" with the problems, issues, and concerns of the front-line managers in the operating companies. Moreover, units valued their autonomy highly and resisted corporate interference.

Eventually, the inflexibility and user-hostile way of operating, made the individual companies decide to keep or re-equip their local IT departments, making the assistance of ITT Publitec superfluous.

Adapted from Internal Documents and Interviews.

Exhibit 9.1: ITT Publitec: An Attempt to Increase the Degree of Knowledge Exploitation.

So, by recognizing the growing interdependence and acknowledging the need to change the corporate management style, ITT World Directories was confronted with a conplex and demanding transformation endeavour. Because integration has never been a major issue within this corporation and the management philosophy has always obscured or demotivated the development of an horizontal strategy, ITT World Directories had to overcome numerous organizational barriers to cross-unit cooperation to achieve synergy and strengthen the group as a whole. As the quote heading this chapter states, a dramatic and fundamental change was necessary requiring a major investment in both financial and emotional terms of all the employees. This change process was intended to influence ITT World Directories' intracorporate knowledge sharing activities and hence was of interest for this research project. In contrast with the previous two cases in which we described the stimulating and facilitating role of corporate management within organizations in a steady-state situation, the ITT World Directories case focuses particularly on the process dimension over a two year period. The possibility to study the managerial actions affecting the intracorporate knowledge sharing process over a period of two years provided this research project with an additional and interesting viewpoint on the key managerial issues and challenges surrourding this organizational activity.

Like the other two case studies, the case description of ITT World Directories is structured around the elements of the strategic "fit" model. In the following order, we review ITT World Directories' changing business environment, analyze the current alterations in ITTs and ITT World Directories' corporate strategy and philosophy, describe the firm's history and administrative heritage, and elaborate on ITT World Directories' recent efforts to become, as one slogan stated, "Stronger Together" by establishing an interdependent network of directory publishers throughout Europe. Finally, we conclude this chapter with a confrontation of the particular organizational situation within ITT World Directories with the framework as presented in the theoretical part of this study. The empirical findings of the ITT World Directories case are reviewed on their fit and illustrative "power" regarding the theoretically deducted propositions on the prerequisite management systems for managing intracorporate knowledge sharing. The identified management tools of the knowledge sharing awareness, persuasion, complexity reduction, and media system are systematically reviewed and some tentative conclusions are formulated on the barriers still obstructing and complicating the initiation and effectuation of intracorporate knowledge sharing within the organization of ITT World Directories, Inc.

9.2 ITT WORLD DIRECTORIES' CHANGING KNOWLEDGE ENVIRONMENT

ITT World Directories, Inc., established as a subsidiary of ITT corporation in 1967, has become the largest independent Yellow Pages publisher in the world with roughly US$ 600 and US$ 135 million in respectively worldwide revenues and operating income in 1994,

approximately 2,300 employees, and interests in eight countries (Belgium, the Netherlands, Portugal, Ireland, Norway, Puerto Rico, South Africa, and Japan). As a Yellow Pages publisher, ITT World Directories is functioning as an advertising and information medium between suppliers and potential buyers in the marketplace. Besides standardized information which is the same for all market segments (e.g., name, address, telephone number), businesses can advertise in the Yellow Pages to distinguish themselves from their competitors and to reach their targeted customers. Businesses advertise in the Yellow Pages because they perceive that doing so will bring them profit by generating new business.

The Yellow Pages business has been a successful and profitable operation for a long period of time by creating value for both consumers and advertisers. In virtually all countries throughout the world, a quasi-governmental telecommunications authority had (and in some cases still has) the exclusive right to provide telecommunications services. The obligation to publish White and Yellow Pages telephone directories was mandated along with that right. In some countries the White and Yellow Pages were published under full control of the local telephone corporations, in other countries the local telephone corporation subcontracted that right to another corporation for which it received a fixed telco fee or a share of the profits. The main three full-service Yellow Pages operations of ITT World Directories in Europe - ITT Promedia in Belgium, ITT Gouden Gids in the Netherlands, and ITT Paginas Amarelas in Portugal - have operated for many years by a subcontracting arrangement with the national telecommunications services. The right to publish Yellow Pages was exclusive and hence each local Yellow Pages market was more or less a monopolistic one.

From the beginning of 1994, it became clear that the exclusive relations with the local PTTs in Europe and hence the granted monopoly positions of the companies of ITT World Directories were no longer accepted by the Commission of the European Union. From its publication in 1987, the EC Green Paper on the development of a common market for telecommunications services and equipment made the regulatory environment in which the majority of the traditional telecommunications organizations had operated completely different through the application of the objectives to harmonize and liberalize[3]. Consequently, the PTT monopolies have given place to broader competition and the policy of the Commission of the European Community regarding competition in telephone directory publishing is based on the premise that all services should have the opportunity to be provided under competition. Specifically regarding directory information, the Commission has underlined several times that the access to information is not a matter of copyright law. Article 86 always applies where a dominant company abusively refuses access to such information or restricts unreasonably such access.

---

[3] The legal construction of competition is based on the strict understanding of a number of principles, in particular those contained in articles 85 and 86 of the Treaty of Rome. These aim to prohibit: concerted practices which may affect trade between Member States; more generally, any kind of practices which may create distortions of competition (such as discrimination); and any abuse by one or more undertakings of a dominant position within the common market.

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Total Sales (x million US$)	18,705	16,076	18,058	17,876	18,248	18,698	18,395	19,634	21,129	23,620
Insurance	6,834	8,480	9,507	8,553	8,689	8,836	9,242	9,862	10,338	11,102
Products	10,314	5,870	6,626	7,464	7,741	8,057	7,342	7,767	6,529	7,647
Services	1,557	1,726	1,925	1,859	1,818	1,805	1,811	2,005	4,262	4,871
Income/ (Loss) (x million US$)	294	494	1,085	817	922	958	817	(260)	913	1,022
Total Assets (x million US$)	37,849	35,805	39,983	41,941	45,503	49,043	53,867	58,764	70,560	100,854
Sales Contribution by Region										
U.S.								13,125	13,773	15,835
Western Europe								6,169	5,543	5,811
Canada and Other								1,666	1,813	1,974
Income Contribution by Region										
U.S.								(622)	810	992
Western Europe								202	353	471
Canada and Other								156	471	156
Number of Employees (x 1,000)	232	123	120	117	119	114	110	106	98	110

Table 9.1: ITT: Ten-Year Financial Summary till the Split-up (Adapted from ITT Annual Report 1994).

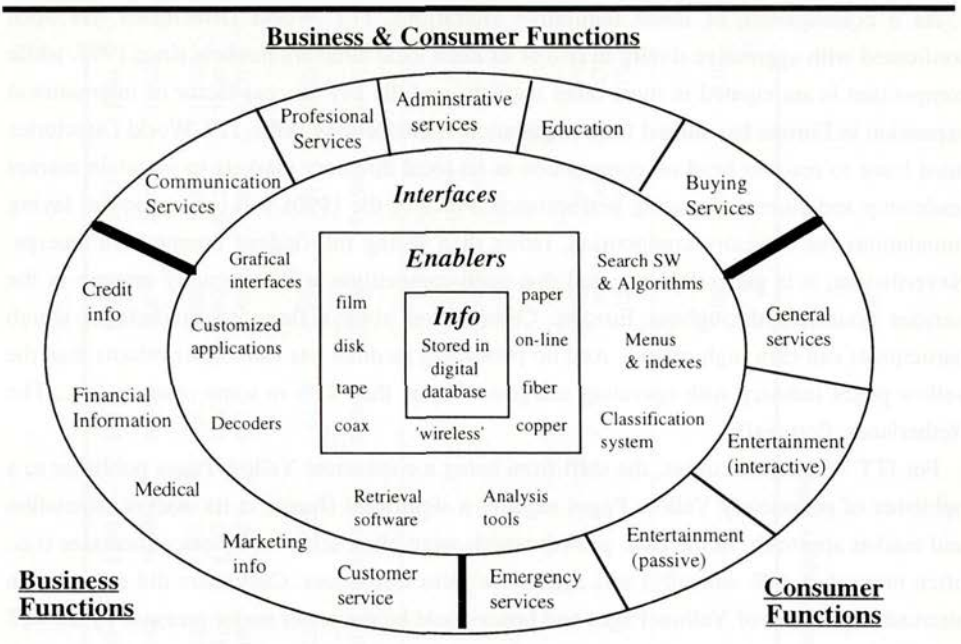
As a consequence of these regulative alterations, ITT World Directories has been confronted with aggressive rivalry in two of its main local directory markets since 1995, while competition is anticipated in most other markets, and the key success factor of international expansion in Europe has shifted from negotiation to competitive skills. ITT World Directories must learn to react to head on competition in its local directory markets to maintain market leadership and current operating performance. Much of the 1990s will be a period of laying foundations for directory competition, rather than seeing full-fledged competition emerge. Nevertheless, it is generally expected that such competition will eventually emerge in the various countries throughout Europe. Competition always flows to markets in which participants can earn high returns. And no publishing medium has had higher returns than the yellow pages industry with operating margins of more than 25% in some markets (e.g., The Netherlands, Portugal).

For ITT World Directories, the shift from being a contractual Yellow Pages publisher to a publisher of proprietary Yellow Pages requires a significant change in its market orientation and market approach. In the past, growth targets were often achieved by price increases (i.e., often more than 6 % annually) and aggressive sales techniques. Customers did not have an alternative provider of Yellow Pages and hence could be put under major pressure by the ITT World Directories' salesmen. Under competitive circumstances, however, the market approach can not afford to be based on an aggressive "push" strategy. "Soft" sales approaches, customer care, and relationship marketing need to dominate and should be complemented by a high quality directory product, advanced advertisement campaigns, and a perfect feeling of needs and developments in the market. So instead of distracting competitive advantage from a

USERS	TECHNOLOGY	ADVERTISERS	REGULATORY	COMPETITION
More sophisticated users -both domestic and business Lifestyle changes Increasingly focusing on convenience, reliability, portability, accuracy and low cost Demand for multi-functional services (e.g. product/ service information, competitor comparisons, billing) Greater awareness of environmental issues	New electronic interactive systems opening up new possibilities Merging of directive and broadcasting segments Possibility of transaction-based services and information services	Large sophisticated players looking for new innovative channels Move to direct marketing Greater focus on performance measurement Concentration of advertisers Growing divergence of advertiser groups	Deregulation and other moves to increase competition Greater focus on green issues Increasing difficulty to regulate the new emerging information environment	Saturation of traditional Yellow Pages markets National Players looking for new international opportunities Emergence of small indepdendent publishers in some markets New emerging electronic channels, including cable TV Direct marketing becoming a stronger competitor

Adapted from Internal Documents and Interviews.

Table 9.2: Changing Elements in the European Yellow Pages Business.



Adapted from Internal Documents.

Figure 9.1: Business and Consumer Information Services.

governmentally granted monopoly position, the subsidiaries of ITT World Directories are increasingly forced to create and sustain a distinctive advantage vis-à-vis new entrants in what used to be *their* directory market.

Besides the threat of direct competition, however, many other trends in the contextual environment have also enforced ITT World Directories to adapt its strategy and to invest in the development of its internal organization (see Table 9.2 for numerous trends affecting directory publishing). Particularly the dramatic convergence of electronics, publishing and networking industries strongly challenges the Yellow Pages operations in many countries. New electronic information media, both off-line (e.g., diskettes, CD-ROM, CD-I) and on-line (e.g., cable, internet), are becoming available challenging traditional paper-based directories and making more elaborate Yellow Pages information services possible (see Figure 9.1). For persons used to computers (a growing segment of the population) electronic queries elicit more options than paper queries and hence these persons prefer to access the information in an electronic way. "Certain purchases in the future will be made via electronic media," one marketing manager stressed. "Although this will differ per heading and per segment of population, a number of users will not use the paper product anymore within a certain period of time. [...] Transfer of information becomes increasingly more easy through automated information services and the distinction between directory publishers and other information providers is going to evaporate."

The ultimate vision for the buying process of consumers is a sort of video mall, where shoppers will browse through channels as through individual stores, ask for information and advise, order, and pay - all without leaving the comforts of home. Consumers as well as business men will be overloaded with information. In this case, the number of choices required of the individual consumer will reach impossible levels. As the range of consumer options expands, "information overload" will become a major difficulty both for the consumer and for the marketer attempting to reach them. The need for a "broker" service to match a prospect's needs with a likely niche service provider will grow. Moreover, as the number of consumption and leisure options grows, the perceived time constraints upon the individual will expand as well. Time-saving services like a "smart" Yellow Pages will experience strong demand in the future.

"The essence of our business today and in the future," one general manager stressed, "is not targeted at the advertiser, however important he might be for our revenue flow. The essence of our business is the usage of our product. Businesses advertise because they perceive that advertising in the Yellow Pages will bring them profit by generating new business. And new business is generated as a result of usage." "Because usage is so important," one of the front-line managers added, "competition will battle for the user. Competition will come from traditional paper directories, and from other media too. It is therefore essential that in the field of product development (both paper and electronic) maximum attention is paid to what the user wants today and what he will demand in the future. [...] The only way to combat competition is to make sure that our products meet the needs of the user better than those of our competitors. Consequently, heavy investments will need to be made in the further improvement of the paper product, the increased breadth and depth of the information, providing the user with more information on which to base his choice from the range of suppliers, and the launch of several information delivery modes in addition to the paper medium."

By enhancing its service, ITT World Directories differentiates its products from those of competitors. Moreover, a differentiation strategy increases the position of ITT World Directories' products vis-à-vis substitute products. Various products enhancements have been introduced during the past two to three years (e.g., directory on diskettes, CD-ROM, and Internet) and are being planned for the coming years. The differentiation strategy is complemented by a rationalization strategy to improve the firm's cost position and to sustain cash-flows from operations. This objective will be met through increased efficiency and a decrease in overhead expenses. Continued investments in information technology have to facilitate the efficient effectuation of the newly developed business processes.

Concluding we can state that numerous recent trends in the contextual and task environment have significantly changed ITT World Directories' knowledge environment (see Figure 9.2). Competition exists or is anticipated in most of its marketplaces, substitutes and niche players become more threatening, and users are increasingly demanding electronic variants of the traditional paper-based product. Besides the growing importance of local adaptation and

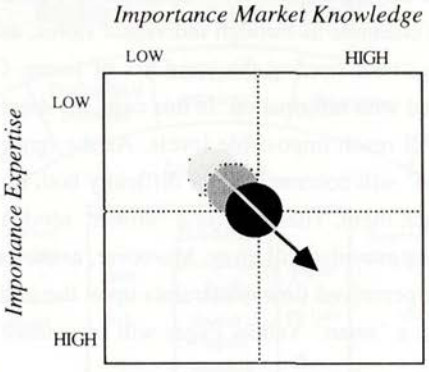


Figure 9.2: The Knowledge Environment Grid of ITT World Directories.

customization strategies and hence the increased importance of market knowledge, expertise in product development, information technology, and several other functional areas (e.g., graphics, distribution, sales approaches) becomes more and more essential in achieving sustainable competitive advantage. Both market knowledge and expertise are simultaneously becoming more important and hence put a pressure on ITT World Directories' knowledge management abilities.

7.3 ITT WORLD DIRECTORIES WITHIN CORPORATE STRATEGY

The International Telephone Corporation (ITT) was founded by Sosthenes Behn as a Puerto Ricon Telephone Company in 1920. The growth expectations for telephone services were very high in those times and until Harold Geneen became Chief Executive Officer, telephony was ITT's core business. Under the 23-year stewardship of Geneen in the 1960s and 1970s, however, ITT achieved the classic conglomerate status for which this firm is well known. Instead of strengthening and extending its strongly internationalized network of telephone companies, Geneen wanted to establish a more US-based corporation in which it was safe to invest for the primarily American shareholders. In 1959, more than eighty percent of ITT's revenues originated from foreign operations while performance levels were often affected by currency fluctuations and political instability abroad. An investment program was started focused on the acquisition of primarily American companies. In this period revenues went from US$ 800 million to US$ 22 billion, and earnings rose from US$ 30 million to US$ 560 million. A diversified portfolio of investments was built with stakes in insurance, financial services, defence, electronics, fluid technology, automotive products, hotels, telephone directories, and educational services. In 1979, when Harold Geneen stepped down as Chairman of the Board, ITT had made more than 250 acquisitions in less than two decades (Porter, 1987).

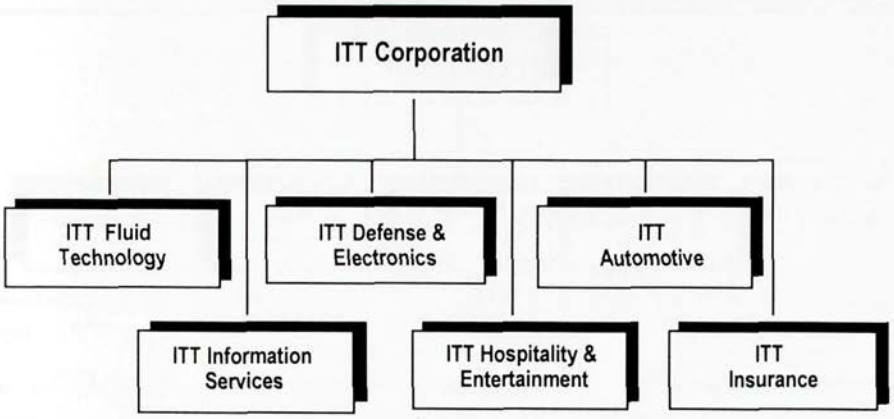


Figure 9.3: ITT Corporation till 1996: One Strongly Diversified Corporation.

A vast confederation of 2,000 working units were handed over to Geneen's successor Araskog, including a US$ 5 billion debt, accrued, in part, by the merger and acquisition activities. The debt became a heavy cost burden at the moment interest levels started to rise significantly in the US in the beginning of the 1980s. These interest costs combined with the restructuring of several of its operations made ITT vulnerable to several hostile take-over bids. Some authors and journalists started to describe ITT as a "museum of the investment and management ideas of the sixties." Confronted with the threat of unwilling corporate take-over, Araskog took a number of steps to reduce the size of ITT's corporate debt. He streamlined the holding into a more limited number of product and service areas and sold more than 200 operating units. The aim was to build an organization around a strongly reduced number of industries with the geographical emphasis on the US. His most dramatic steps until June 1995 were the 1986 sale of the original core business of the company, the telephone business, to CGE of France, leading to the creation of Alcatel, and the US$ 13 billion sale of the financial services division in 1994. Notwithstanding the numerous disposals, ITT remained a typical conglomerate with an unrelated portfolio of business investments.

In June 1995, the year in which ITT celebrated its 75th anniversary, the board of directors approved and announced a plan to divide ITT into three separate publicly traded companies: an insurance company, an industrial group, and a hotel and gaming company (see Figures 9.3 to 9.5). The corporation which for decades embodied the concept of the conglomerate rounded off an era by breaking itself up. The demerger of the company, accounting for a sales figure of US$ 24 billion in 1994, is claimed to be the largest in the US since the enforced break-up of AT&T a decade ago. The companies have now separate boards and are traded separately on the New York Stock Exchange. Mr. Araskog argued that the move would make it easier to raise capital, recruit staff, and create synergies between its operations. The greater focus could

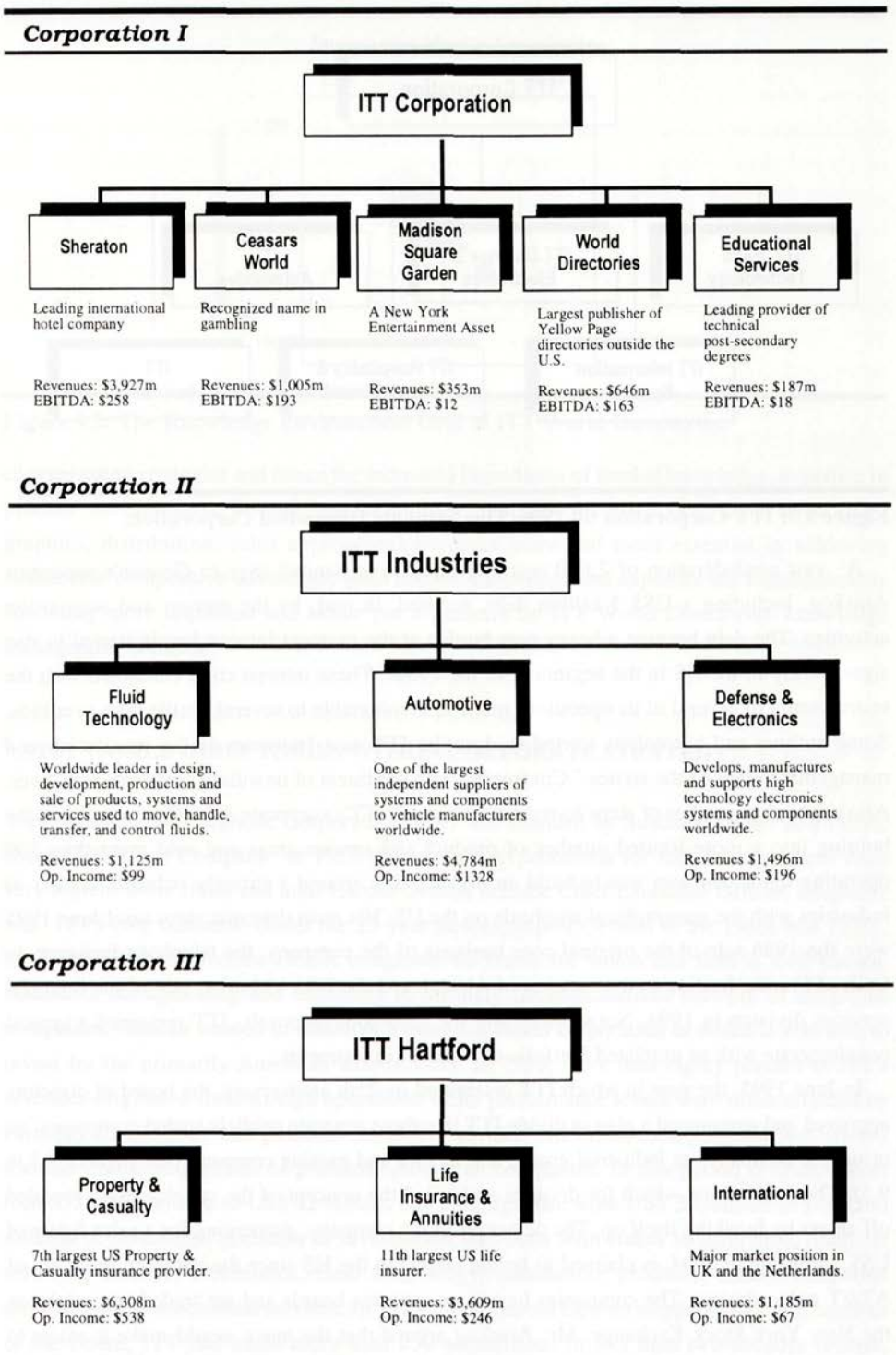


Figure 9.5: ITT Corporation after 1996: Three Separate Companies.

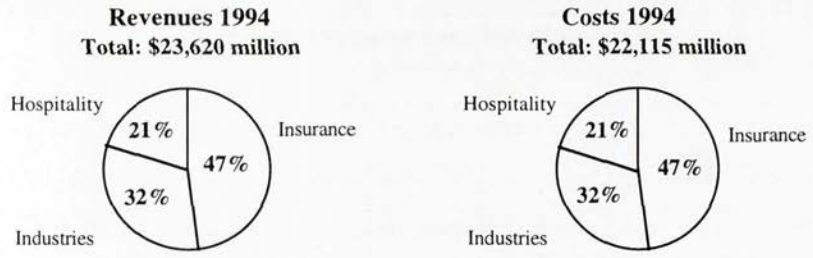


Figure 9.4: ITT Corporation Splitting into Three Businesses.

lead to better performance of the underlying businesses. Instead of spreading its capital resources and management attention over a range of disconnected businesses, a focused company could concentrate on one line of business. A core business strategy could be developed for each corporation and each of them could be managed in a way that would make the total group more than the sum of its subparts. "It's the end of an era." Mr. Araskog stated. "The split up of the ITT Corporation is the end of a case study regarding the evolution of a conglomerate."

ITT World Directories was brought under the "umbrella" of ITT Corporation, the company primarily concerned with entertainment, leisure, and travelling businesses. In emphasizing the value of the new ITT Corporation, corporate management pointed to the quality of its assets - the ITT Sheraton Hotel chain, its gambling casinos, Manhattan's Madison Square Garden, and a consistently profitable telephone directory business. Having spent some $4.5 billion over the past two years to buy assets, Araskog, who chose to run the hotel and entertainment business, has yet to prove that he can make good returns from them and some critics seriously doubt ITT's ability in this respect due to the loosely defined core business of this group. As Chakravarty and Lubove stated in *Forbes* (March 25, 1996): "It appears that Araskog and Bowman have put together, not an integrated business, but a somewhat sexy-looking

	1994				1995			
	Revenues	% of Total	EBITDA	% of Total	Revenues	% of Total	EBITDA	% of Total
Gaming	1,232.1	20.7%	211.7	27.7%	1,452.3	22.3%	316.0	35.4%
Hotels	3,896.0	65.4%	263.0	43.6%	4,120.0	64.1%	383.0	42.9%
World Directories	646.0	10.8%	162.0	26.8%	654.0	10.2%	209.0	23.4%
Educational Svc.	187.0	3.1%	19.0	3.1%	202.0	3.1%	28.0	3.1%
Madison SG			12.0	2.0%			78.0	8.7%
Others			-64.0	-10.6%			-122.0	-13.7%
Total	**5,961.1**	100%	**603.7**	100%	**6,428.3**	100%	**892.0**	100%

Table 9.3: ITT Corporation - Revenues and EBITDA by Business Segment 1994-1995.

ITT World Directories' Strategic Vision

ITT World Directories will develop, sell, and distribute enhanced business information in formats that can be tailored to meet the specific advertising needs of our customers.

We will grow by concentrating on small and medium-sized businesses in geographic markets that have a developed communications and business infrastructure. We will become a major player with current, comprehensive, easy to use and accurate products that bring premium prices and margins.

We will strive to anticipate the evolving needs of our customer base through constant product improvement and an effective and responsive sales force.

Adapted from an Internal Document.

Figure 9.6: ITT World Directories' Vision Statement.

conglomerate that makes acquisitions on an opportunistic basis rather than on a strategic basis."[4] ITT World Directories is seen by capital investors as an important addition to this group in terms of the generated cash flow but certainly outside the scope of the firm. Because cash flow from gambling and hotels tends to get reabsorbed in capital spending, the directory business is ITT's principal source of the free cash flow it will need to reduce debt and make acquisitions. Therefore, the emerging competition in local directory markets is seen as a serious threat for this group as a whole.

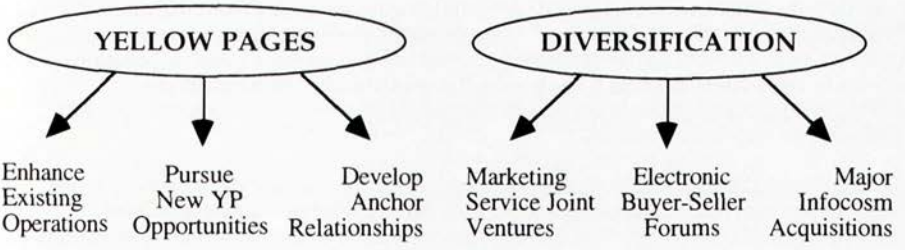
In this respect, ITT World Directories, Inc. was stimulated to develop a corporate vision and to establish action plans to consolidate and, if possible, further expand its highly profitable business in a more competitive and dynamic business environment. Caused by the dramatic changes in its business environment, ITT World Directories was forced to adapt its organization to increase the firm's flexibility. This flexibility was required to enable the firm to react to the various market changes, technological developments, and emerging competition. While "milking" its yellow pages businesses and hence generating a significant cash flow for ITT was affordable and reasonable in a stable market, a rejuvenation of its Yellow Pages operations seemed now inevitable in improving its chances for survival on the longer term. The traditional emphasis on cost-cutting operations, manpower reductions, and improved top-line performance would in these more dynamic environmental circumstances be destructive. Besides optimizing the local operations, ITT World Directories needed to make the total group more than its subparts. Corporate value, as was assumed by ITT's top management, could be generated by merging operational activities and leveraging the existing knowledge in terms of experience, skills, operating systems, and product innovations. Moreover, the prospective

[4] Interesting to note is that Hilton Hotels launched a hostile $6.5bn takeover bid for ITT at the end of January 1997. To be able to finance the deal, Hilton Hotels was expected to raise a significant amount of money (approximately $1.5bn) by selling ITT's non-core interest World Directories. In a reaction, also ITT said it considered selling its World Directories unit as a part of its plan to shed non-core assets.

"corporate umbrella" should be able to strengthen the competitive strategies of its subsidiaries and enable an internationalization strategy to further leverage corporate resources.

In 1995, ITT World Directories formulated a mission statement to guide the company into the future (see Figure 9.6). In response to Yellow Pages advertising's flattening growth and numerous changes in the contextual environment of the Yellow Pages contractors, ITT World Directories' management group developed a new strategic vision containing two central elements (see Figure 9.7). On the one hand, ITT World Directories' position in the yellow pages business should be further expanded and refined. Here the principal objective was to ensure sustained cash flow from operations and to enhance operations, thereby increasing shareholder value. On the other hand, ITT World Directories should diversify into other marketing and advertising areas where the distribution of enhanced business information offers growth opportunities, sustainable returns and attractive returns on investment. This strategic thrust would permit ITT World Directories to migrate from a paper-based product to an electronic product.

Above all, most managers started to acknowledge the necessity for the operating units to unite their forces in order to maintain market leadership in their local yellow pages markets. Management throughout the hierarchy was forced to challenge its existing conception of working together. A dramatic and fundamental change was necessary which required a major investment in both financial and emotional terms, and in line with these changes intracorporate knowledge sharing moved from a non-issue to a strategic necessity. Individual companies could not afford the investments prerequisite to rejuvenate their own directory business and come up with innovations to differentiate their products and services from competitors. In contrast with the prevailing situation in which a lot of duplication in knowledge exploration activities still existed (see Exhibit 9.2), knowledge resources had to be shared and investments in research and development activities coordinated. Moreover, corporate management stretched its corporate goals by formulating the objective to gradually increase the scale of ITT World Directories by an active internationalization strategy to leverage the corporate resources



Adapted from an Internal Document.

Figure 9.7: ITT World Directories' Strategic Direction.

Electronic Media:
Unexploited Opportunities for Intracorporate Knowledge Sharing

The migration of ITT World Directories' print directories to electronic media is a transition that the company has been working on for several years. Because many different avenues of development are available for such a service, it is difficult to take a single strategic approach. Flexibility and experimentation are the essence of this component of strategy. Essentially the company will seek a wide variety of experiences and ventures that minimize cost and capital outlays as consumer acceptance and usage patterns become apparent.

In line with these objectives, all ITT World Directories companies have introduced several new information products providing customers with computer access to directory services. ITT Gouden Gids, ITT Paginas Amarelas, and ITT Promedia have joined the information age by offering access to their databases through computer diskettes, CD-ROMs, and Internet. In The Netherlands, each of the company's 26 paper directories has been reproduced on diskettes for DOS or Windows users and on CD-ROM for multimedia access. Moreover, ITT Gouden Gids has put the Dutch Yellow Pages directories on-line by developing one of the most comprehensive Web sites developed by an ITT company. In Portugal, ITT Paginas Amarelas developed a special facsimile directory on CD-ROM. The new directory listed business and their facsimile numbers throughout the country for convenient access. The company also offers Paginas Amarelas Electronica, an operator-assisted Yellow Pages service for voice telephone access to directory services. In Belgium, ITT Promedia began providing CD-ROM versions of its directories in May 1995.

"Our new diskettes and CD-ROMs have been well received," reported the General Manager of ITT Paginas Amarelas. "They are attracting considerable media attention and are quite popular with advertisers and users." "Users gain the convenience and speed of computer access," remarked the ITT Gouden Gids General Manager. "They can browse through the diskettes, CD-ROM, or our internet site by their choice of specific or related headings, key words, alphabetical listings, and geography. The geographic search provides the names, addresses and telephone and fascimile numbers of businesses within 5, 10, 15, 25, and 50 kilometers." The General Manager of ITT Promedia explained, "We see these electronic directories as a natural evolution in the market-place. They are one additional means for us to help bring buyers and sellers together, only now we are doing it with an eye on future technology."

Strangely enough, however, exchange of knowledge has been limited while working together would have saved development costs and could have helped the smaller units of World Directories. The units have been developing, each with the help of outside consultants, their electronic applications independently from the other ITT World Directories subsidiaries. Similar applications were developed in multiple units while at a functional level many of the problems and their possible solutions are quite universal. Differences in development approaches and hardware environments made aggregation of experiences for prospective advancements of the applications almost impossible.

So ITT World Directories was confronted with a lot of duplicate development work in an area which has proved to be susceptible for knowledge sharing and joint development of systems in other firms. Moreover, none of the electronic applications were designed to be easily transmittable and adapted to the requirements of other units of ITT World Directories.

Adapted from Internal Documents and Interviews.

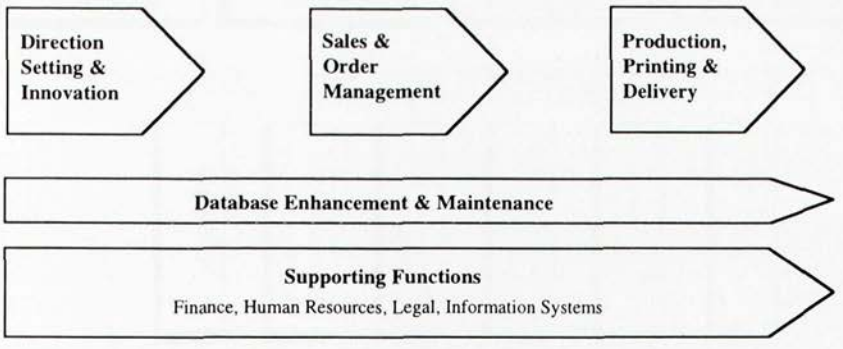
Exhibit 9.2: Electronic Media: Unexploited IKS Opportunities.

and to achieve a critical mass for future investments. In this respect, ITT Corporation announced in February 1997 that it was bidding to buy SEAT SpA, an Italian publisher of telephone directories. Including SEAT would make World Directories a stronger company and worth more due to the opportunities to share expertise and resources (*Reuters*, 21 February 1997).

9.4 ITT WORLD DIRECTORIES' ADMINISTRATIVE HERITAGE

Historically, the main task of ITT World Directories' management at the global headquarters in New York and the European headquarters in Brussels was to review, discuss, and consolidate the strategic and operating plans of the subsidiaries. Communication in this organization, which governs more than 2,300 employees worldwide, took place in quantitative terms without long deliberations regarding the way these financial targets should be accomplished. Dominated by accountants and controllers, headquarters of ITT World Directories had always focused on past and forecasted performance levels, agreed and to-be agreed budgets, and capital investment proposals. Like many other companies (Johnson, 1992), corporate management of this firm often behaved as if the pursuit of accounting goals was the underlying force driving business competition. Goals and reviews dominated by accounting information have been constricting management's thinking. Moreover, the manipulation of business strategies and processes by front-line managers to achieve top and bottom-line targets has often led to the destruction instead of the creation of corporate value.

In line with the changing management philosophy within the ITT Corporation and due to the increased pressure on operating units to gain competitive strength, ITT World Directories' corporate management started to acknowledge the number of pressing issues it had to resolve regarding its value-added role to the businesses in the beginning of 1995. The management style of ITT World Directories has always been strongly influenced by the management practices of its "parent." Harold Geneen was not only responsible for the impressive

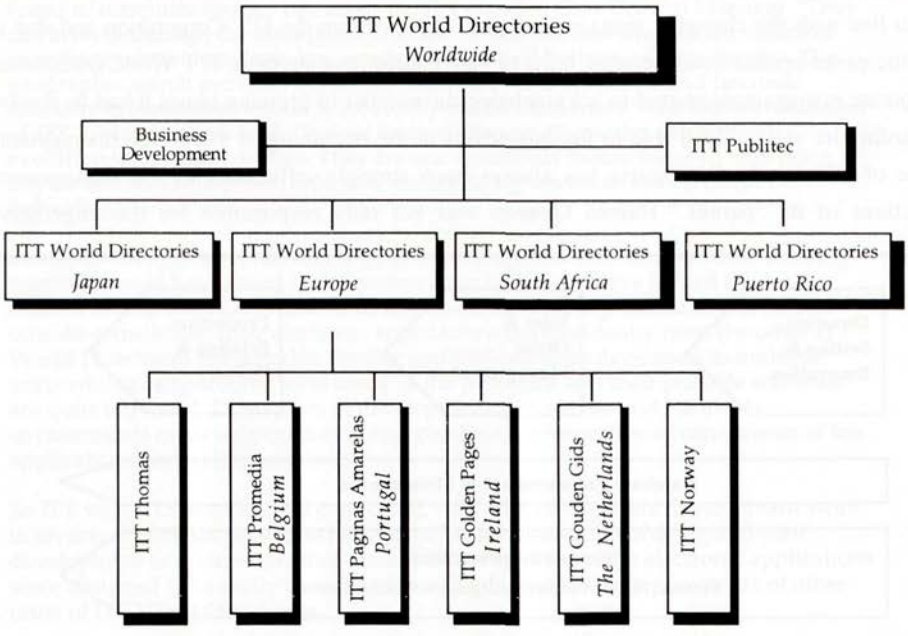


Adapted from an Internal Document.

Exhibit 9.3: ITT World Directories' Key Business Processes.

acquisition strategy in the 1960s and 1970s but was also the "founding father" of ITT's management control system which was based, as said by himself (Geneen, 1984), on his professional background as an accountant. The central element of ITT's control system is a growth objective of 10 percent annually of the earnings per share. Such a quantitative target was the only directive which could be commonly understood by all of ITT's business groups. In managing an unrelated diversified portfolio of business operations, financial targets are unequivocal and provide managers with clear objectives and a focused motivation. Variances against an agreed plan invoked penetrating questions from the top managers in the organization, could seriously damage the position of the responsible manager, and commanded speedy action from the bottom.

Although the "growth" target remained the ultimate objective of the ITT Corporation as a whole, Geneen acknowledged that financial targets could only be achieved by well-developed company strategies. The annual results were the consequence of the operations and actions of the companies in that specific year and the management of key ratios has the threat of losing the link with and control over those local action plans. The large diversity of businesses in which ITT had invested made it very difficult to have an intimate knowledge of each unit's competitors and marketplace and hence to direct the businesses strategically. Geneen, however, wanted more control over its corporation. A management control system was developed which had to get the facts behind the figures and operate as an early warning system for unexpected developments. A control system was developed which was based on three key



Adapted from an Internal Document.

Figure 9.8: Organization Chart of ITT World Directories, Inc.

Key Principles of ITT's Corporate Control System

ITT's Corporate Control System is recognized throughout the world as a unique control system which is very effective for managing a conglomerate of strongly unrelated investments. This control system has made it possible for ITT to accomplished its key objective of 10 percent growth of the earnings per share for many years. The control system is developed to get the facts behind the figures and to prevent the corporation for unexpected (negative) suprises. ITT's Corporate Control System comprises three key principles which will be explained shortly below.

Principle 1: The Planning Cycle

Although the content and focal points have been changed and adapted through the years, the characteristic element of planning within ITT, namely planning the whole year around, remained the same. A distinction is made between a strategic plan and an operating plan. The first part of each year (Januari - June) the strategic plans with figures on the past year, the current year, and the next five years are written down, discussed, and decided upon. The adapted prognosis of the current year is classified as "forecast." The second part of each year (July - December) the figures on the past year, the current year, and the next five years are presented again in the the operating plan and reviewed, compared with the budgets, and consolidated by corporate management. Budgets are very important in discussions within ITT. Not only because it is an indication of next year's performance, but also because it includes a commitment of local management. ITT's budgets are very detailed and require a lot of analysis work.

Principle 2: Monthly Reports

Although ITT took leave of its bi- weakly reports, reports on the budgets in relation to the forcecast and the situation last year are reviewed by corporate management and hence provided by company management on a montly basis. Focal points in the monthly reports are the deviations from budget, some key financial figures (P&L, balance-sheet, cash flow review), and a "Controllers Letter." The Controllers Letter is a description of the main deviations in the P&L and balance-sheet from the forecast and the previous year. Moreover, an enumeration is given in the CL of the main developments in the company.

Not only the Controller has to report on a regular basis. Each and every manager within ITT must write a monthly report each month. In this report a manager describes and explains the main developments in his area of responsibility. Too circumvent that the "bad news" is hidden away in the narrative, the first page of each report includes a list of problems ("red flags") and positive developments ("green flags"). Giving an early warning for "bad news" is highly valued within ITT.

Principle 3: Organization of the Controllers

ITT's Corporate control system is dependent on the provision of the financial data by the companies and needs to guarantee that these figures are correct. Geneen believed that by emphasizing the importance of the correctness and exactness of the "facts" the decision-making process would improve in the end. Not the "apparent facts", the "assumed facts," the "reported facts," or "hoped-for facts" were important, as argued by Geneen, but the "unshakable facts" needed to be the foundation on which decisions were made. To secure the provision of these "unshakable facts," ITT has institutionalized an organizational structure in which the controller in each company reports directly to corporate controller and not to the general manager of the company (see Figure 9.9). By making the controller directly responsible for the correctness of the facts and figures, the General Manager would never be tempted to deform the facts or make a "window dressing" of the situation of his company.

Adapted from Internal Documents and Verbeek (1994).

Exhibit 9.4: Key Principles of ITT's Control System in 1995.

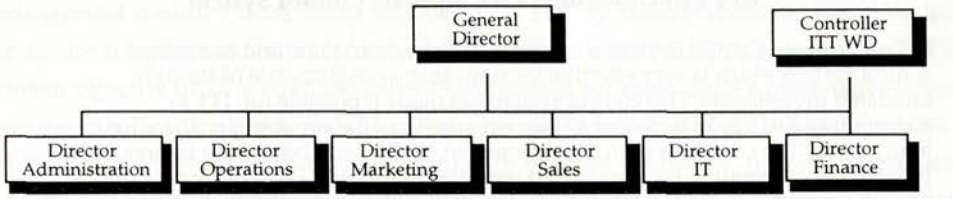


Figure 9.9: Organizational Structure of Each Operating Unit.

foundations (see Exhibit 9.4): a very extensive planning cycle, monthly meetings in which the center reviewed the details of the company's monthly reports with attention for so-called "red flags" and "green flags," and controllers who did not report to the general manager but to controllers in the center.

ITT's control system does not buffer managers from financial pressures. Rather, it imposes a more demanding and penetrating discipline than the capital market itself. By putting performance pressure on the operating affiliates ITT achieved outstanding performance levels for many years. One shortcoming of this system, however, is its bias against strategies and investments with long lead times and paybacks. Managing financial ratios on a company-level (e.g., manpower, cost, ROI) can affect the long-term performance of their business. Management behavior is strongly influenced by the measures on which their appraisals are based. Moreover, blind adherence to last year's budget targets can preclude adaptive strategies and advantageous moves. Particularly in businesses where circumstances change rapidly, controls can become a straitjacket, and opportunities can be missed. At a minimum, this makes financial control companies vulnerable to aggressive, committed competitors that can tolerate a long-term view. The failure to back aggressive strategies means that growth in financial control companies comes more from acquisitions rather than from internal developments. A portfolio of business investments is built without a serious concern regarding the exploitation of operational and strategic synergies between the firm's businesses and this particular strategy, as argued before, is increasingly abandoned by investors on the capital market.

The bias against strategies and investments with long lead times and paybacks has not only stimulated the rise of a conglomerate of unrelated businesses, but has also obscured the effectuation of horizontal strategies between the individual companies. The focus on the performance of each business unit and the customary way of putting local management fully responsible for the achievement of its targets, has led to an organizational culture in which very few synergetic opportunities were exploited. In their strive to achieve top and bottom-line targets, company managers could not afford and were not motivated to built long-term cooperative relationships with their internal colleagues. Moreover, corporate management often put a pressure on and created tensions among the individual companies by benchmarking them against each other on weakly defined parameters. Consequently, "helping your internal

competitors" was not perceived by many of ITT's company managers as an effort with an interesting return on investments.

So, intracorporate knowledge sharing was only achieved incidentally and was certainly not a systematic activity in ITT World Directories. In theory, of course, this problem could be solved by taking stimulating and facilitating measures. ITT World Directories, however, preferred to tear businesses apart in the quest to weed out low-profit activities instead of building coordinated global positions. This division decided to focus on segments or niches and avoid integrated strategies across a broad business area. Many opportunities to share knowledge internally remained unexploited and many attempts to increase the leverage of available knowledge failed due to the organizational culture and the administrative processes within ITT World Directories.

9.5 MANAGEMENT TOOLS APPLIED BY ITT WORLD DIRECTORIES

Notwithstanding the enormous conflict with the traditional way of managing the individual companies, ITT World Directories formulated the objective to make of the group as a whole more than the sum of the individual business units in the beginning of 1995. Creating more unity within a structure which has provided limited focus and help to look at the common problems and solutions for many years, seemed to be a rather complicated assignment but the circumstances enforced ITT World Directories to adopt a strategy aimed at exploiting the existing synergies. It was clear from the start that establishing a more integrated group of companies would require a dramatic adaptation of the organizational context. A new management philosophy, new management tools, and a stronger corporate identity had to be implemented to take away or reduce many of the barriers to cross-unit cooperation. Barriers which had become particular strong due to a deep institutionalized feeling of distrust and the lack of effective tools to manage the awareness, interest, complexity, and media barriers between the dispersed Yellow Pages operations.

ITT World Directories decided to commit itself to a dramatic business transformation process, involving considerable costs but hopefully resulting in a significant improvement in multiple aspects of the business units' operating performance (e.g., productivity, stakeholder satisfaction, increased revenues, best practice levels). A new European organization had to be built, grounded on totally different business principles than the traditional organization. In the following of this section, a process description will be given of the various steps ITT World Directories has taken during recent years in trying to make the business transformation effort succeed. Instead of enlisting and describing the various implemented management tools having an impact on the intracorporate knowledge sharing process, as we did in the Unilever and Canon case, a longitudinal study is presented of the subsequent actions ITT World Directories' management effectuated in its aim to establish an integrated business in Europe. A mutually consistent set of initiatives had to be taken to accomplish the corporate goals. By taking these

Management System / Management Actions	Knowledge Sharing Awareness System	Knowledge Sharing Persuasion System	Knowledge Sharing Complexity Reduction System	Knowledge Sharing Media System
Strategic Maxi-Plan Seminars	X	X	X	
Defining Common Processes	X		X	
Establishing a New Organization		X	X	X

Table 9.4: Some of ITT World Directories' Management Actions.

initiatives various inherited barriers obstructing or complicating the transfer and leverage of knowledge within ITT World Directories were, deliberately or not, brought down. As depicted in Table 9.4, the management actions can be related to our proposed conceptions of prerequisite management systems for managing intracorporate knowledge sharing.

ACTION #1: STRATEGIC MAXI-PLAN SEMINARS

In the beginning of 1995, ITT World Directories' management started a strategic visioning process throughout the organization. While a financially oriented perspective has dominated the operational and strategic plans of this group for many years, World Directories' top management perceived it necessary to develop and share a strategic perspective before commencing with the business process redesign project. Many analyses of business transformation projects have shown that one of the critical success factors of such a task is the alignment of the redesign efforts with the strategy of the company. Business Process Reengineering needs to be linked to strategy to circumvent that the strategy and the reengineering initiative may be pulling in different directions or may not be mutually supportive. Business processes serve as the means to realize business strategies and are the means to render strategies explicit and precise, facilitating their operationalization. Without this link, neither business strategy nor business reengineering will achieve its potential benefits.

Five of ITT World Directories' subsidiaries participated in the business transformation effort and a comparison of their strategic plans learned that significant differences existed in their strategic vision and objectives (see Figure 9.10). ITT Gouden Gids, for example, perceived a gradual migration from the paper product to other media as prerequisite while ITT Promedia was convinced that it was highly unlikely that in the foreseeable future new media would emerge that could duplicate the usage and hence the value of the printed directory. ITT Promedia preferred to enhance its current paper product and its sales process to optimize profit margins, maximize revenue growth both in existing and new markets, improve customer care, and gain competitive advantage. Moreover, ITT Paginas Amerelas was not prepared like ITT Gouden Gids and ITT Promedia to limit itself to their current product or current market and wanted to diversify to new markets with new products. The development of the Portuguese advertising market would create attractive investment opportunities which ITT Paginas

Amarelas wanted to exploit (e.g., outdoor advertising, alternate segments of the advertising market). The main component of Golden Pages' operating strategy was to lower overall costs and enhance the core product, while Intermedia wanted to pursue core product enhancements and stretch the business to new markets.

So major differences existed between the strategic priorities of the subsidiaries of ITT World Directories and hence these differences had to be explicated. For cross-unit cooperation to succeed, it seemed important to create mutual understanding between the business units and bring strategic perspectives in line or at least not in conflict with each other. Without such an understanding, a discussion on the core processes and their redesign would be much more complicated and hence less valuable. A business strategy identifies both the processes the organization must have in place to satisfy today's stakeholders and dictates those processes which must be in place for future competitiveness. Consequently, business strategy prioritizes the importance and the optimal organization of different processes in the organization and hence ITT World Directories made an attempt during the Strategic Maxi-plan sessions to create and get agreement on a shared strategic perspective. Although local adaptations were allowed, a feeling of mutual understanding was necessary to facilitate the discussion in latter stages of the business transformation effort.

Corporate, World Directories and Unit management participated in the development of the World Directories Maxi-Plan. The principal elements which were discussed and scrutinized during this process were a situational assessment of the competitive environment, the vision and strategy at both unit and divisional level, and cost-benefit analyses of the proposed

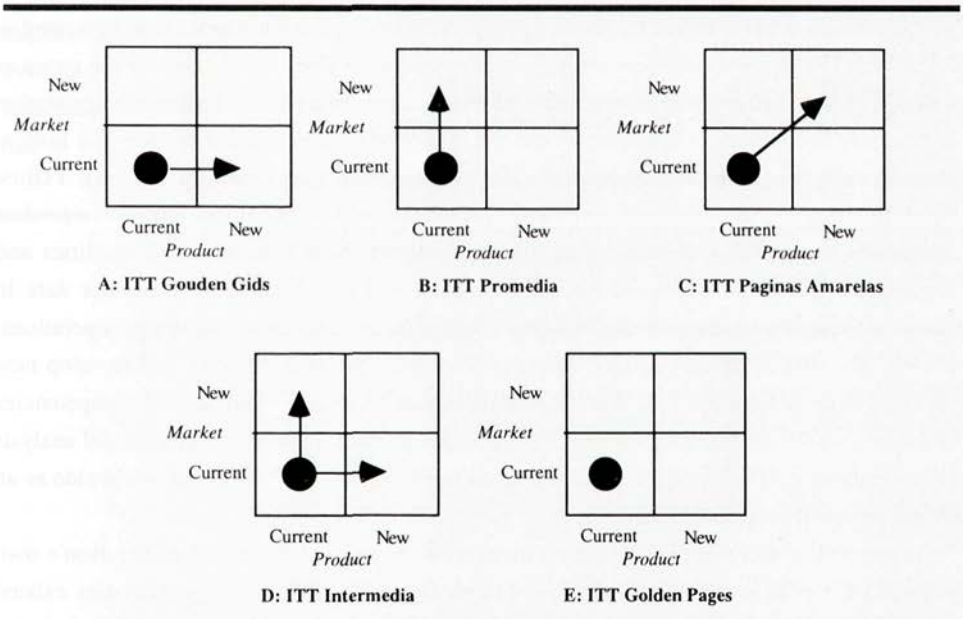


Figure 9.10: Comparison of Product-Market Strategies of Five ITT WD's Subsidiaries.

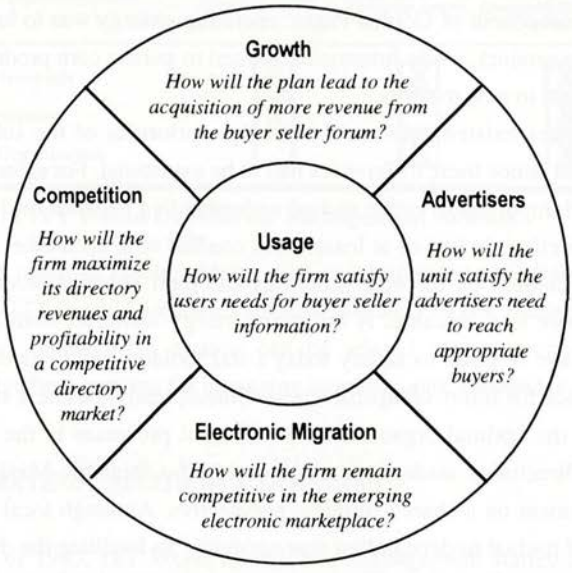


Figure 9.11: The Principal Criteria Employed in the Review of the Maxi-Plan.

strategic actions. Financial reporting requirements were significantly reduced and the principal criteria employed in the review of the plans and overall strategy were now more qualitative in nature: growth, competition, usage, advertisers, and electronic migration (see Figure 9.11). In the end, the various national and international management meetings resolved in a corporate perspective for the ITT World Directories group. Next to the mission statement as presented in Figure 9.6, ITT World Directories' management agreed upon five critical tasks for the group as a whole. First, a fundamental redesign of core business processes had to lead to the application of best business practices to improve both the competitive strength and the top and bottom lines of each operating unit. Second, the development and enrichment of the core Yellow Pages products to meet or exceed customer expectations, as well as explore innovative product extensions to meet new and emerging market demands. Next, the database facilities and capabilities had to be improved for the collection and organization of customer data in electronic formats to improve the efficiency and effectiveness of the affiliates' operations. Fourth, diversification was defined as a company-wide effort to identify and develop new business opportunities for ITT World Directories that leverage organizational competencies and lessen unit dependence on the core Yellow Pages product. Finally, through careful analysis of its operations, ITT World Directories wanted to ensure that it is perceived worldwide as an environmentally responsible company.

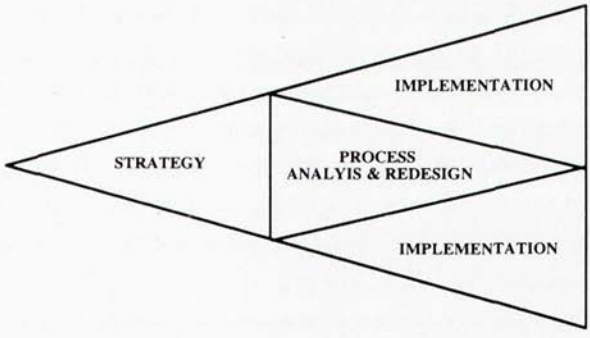
In the end of the strategic visioning process, a shared understanding of the firm's own business, the critical challenges, the key success factors, and the strategic priorities existed throughout ITT World Directories. Differences in perspectives were explicated and shared

business issues became better known. The foundation was created on which a growing degree of integration between the operating companies could be built.

ACTION #2: DEFINING COMMON PROCESSES - THE EARLY ATLAS STAGES

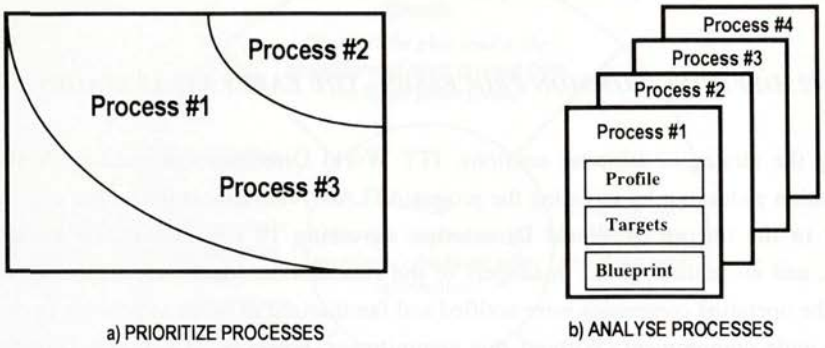
Following the strategic visioning sessions, ITT World Directories pursued its business transformation endeavour by initiating the project ATLAS. ATLAS was the largest cross-unit operation in the history of World Directories, involving 10 consultants, 10 divisional managers, and more than 40 key managers of the subsidiaries. Moreover, all management layers in the operating companies were notified and familiarized as much as possible to ensure corporate-wide commitment. Without this commitment, however, ITT World Directories acknowledged that it would be impossible to break through the barriers inherited from the traditional culture of unit independence. In the past, the structure of ITT World Directories had provided limited focus to look at common problems and their solutions. The lack of a "sharing culture" has resulted in major company differences in terms of processes, activities, market approaches, and implemented management systems. Moreover, a feeling of distrust resided throughout the organization hindering all cooperative efforts on an inter-subsidiary level.

The aim of ATLAS was to significantly improve customer service levels, increase revenue generation, and undercut competitors in cost structure. All subsidiaries were threatened by the declining growth in the Yellow Pages market, increased competition, margin pressure, and electronic substitutes. Hence, divisional management presented the reengineering effort as one of the critical tasks to optimize the net returns from core operations, gain competitive strength, explore new business opportunities, and improve organizational flexibility. Notwithstanding their severe scepticism, the five full-service Yellow Pages units were asked to formate a cross-functional project team with in-depth functional understanding. These cross-functional teams had to contribute to prioritization of ITT World Directories' key processes and to the unit



Adapted from Internal Documents.

Figure 9.12: A Perspective on ITT World Directories' Business Transformation.



Adapted from Internal Documents.

Figure 9.13: Key Process Selection and the Process Analysis Activities.

baselining and process profiling activities. Within the confines of the ATLAS project, ITT World Directories' core processes had to be examined on key performance indicators (e.g., capability delivery, cycle times, service and quality levels, cost drivers) to reveal organization inefficiencies and identify the need for new technologies and systems. In this phase of the business reengineering process, consultants provided the methodology (see Figure 9.12 and Figure 9.13), creative ideas, and their benchmark capabilities. Moreover, these consultants would act as a catalyst to build buy-in and create change.

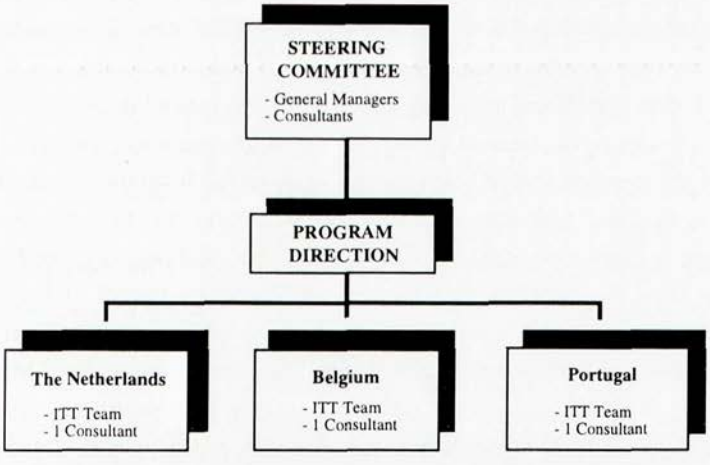
In September 1995, ATLAS commenced with a Business Transformation Training Program for all participants in Brussels. The purpose of this three-day training program was to provide a detailed introduction to the Booz, Allen & Hamilton's methodology and allow participants to develop intercultural and cooperative skills. The training program had to "rally the troops" and lower the resistance to cooperate. Involving people in defining their roles and facilitating two-way and open communication helps building ownership. Several workshops were arranged to led the managers share their ideas, know-how, and comments and create a basis on which trust could grow. Moreover, a quick introduction was given on such techniques as benchmarking, activity-based costing, and value-added analysis which could be valuable during the analysis and redesign phase of the ATLAS project. In short, the training program created a uniform understanding and groundwork by all the team members and facilitated employees to establish informal relationships with their colleagues in other countries.

In the agreed project organization, locally focused resources were complemented with central coordination and oversight of a Steering Committee (see Figure 9.14). While the local teams were responsible for the collection and aggregation of data such as past performance levels, alternative customer segmentations, and activity models of prime business processes, the Steering Committee selected the core processes, benchmarked the companies, and set the targets for each prime business process. Working on the reengineering effort, however, was a phenomenal challenge for everyone involved, with valuable skill development, and high

visibility at the unit, divisional, and corporate level. As one of the top managers stated, "As this is a unit-focused project performed by and for the units, we will ensure that the unit teams and individuals contributing to our success shine very brightly."

During the first 6 months, it became gradually clear that the differences between the companies in terms of process configurations were far less than was often assumed. As stated by one manager: "In the past, we have always acted as if our units differed too much to be comparable. In being confronted with the data on process definitions and activity flows, we still see that we define our businesses differently and that we put emphasis on other aspects of our operations. [...] However, our business processes comprise for more than 80 percent the same activities and hence we need to acknowledge that we have neglected numerous opportunities to share knowledge in the past." In line with this observation of the shared elements, it proved to be possible to frame the business of each company in three broad business processes, namely direction setting & innovation, sales & order management, and delivery. Moreover, some uniform support functions were distinguished for all operating affiliates. This emphasis on the communality instead of the differences enabled a streamlining and optimalization of the resource allocation on a cross-subsidiary basis. A blueprint of the new European organization could be developed which challenged conventional thinking, ignored traditional organizational boundaries, and helped in cutting out redundant business activities.

Most of the team members, however, remained tremendously suspicious during the early stages of the ATLAS project. The divisional superiors to whom local team members had to deliver their data were still the same managers which misused benchmarks in the past to compare "apples with oranges" and "squeeze" all operational leeway and slack out of the local companies. As one manager explained: "ITT World Directories has a history of optimizing each individual unit. Working together to make from the group more than the sum of its parts



Adapted from Project "ATLAS" Documentation.

Figure 9.14: Project ATLAS Organization Phase I.

requires a totally different orientation. [...] It takes time before we will get used to this and totally trust our international colleagues." Although tight project targets and deadlines kept the "data-generating machine running," ownership was not felt in the units. Although regular team meetings on a local and international level were intended to improve this situation and reduce the resistance, the basis for implementation was still precarious.

The early stages of the ATLAS project ended with detailed cost reduction and process improvement targets for each core process such as the development of a European competence center for direction setting and innovation, sales channel realignments according to new market segmentation, and the implementation of digital graphic systems. Moreover, it also identified significant revenue enhancement potential across all three units by such measures as salesforce specialization, increased face time, improved training, and improved compensation packages. The blueprints were based on a set of guiding principles for the core processes which were supported by a quantitative and qualitative rationale. The output of the first phase combined with the vision of ITT World Directories' top management led to a new configuration of European operations driving operational and capability changes throughout the European organization.

ACTION #3: TOWARDS A NEW ORGANIZATION - THE LATTER ATLAS STAGES

In the beginning of 1996, ITT World Directories announced the intention to break up the project structure of the early ATLAS stages and to assemble an ATLAS implementation team to develop, test, and implement the blueprint of the prospective European operations. The ATLAS implementation team had the challenging task to come up with tangible and common solutions in terms of the relocation of activities, human resource transformations, the prerequisite administrative procedures, and information systems enabling the coordinative and operational actions. Approximately 15 skilful, high-level managers were recruited throughout the ITT World Directories hierarchy to participate in the roll out of the accommodated process flows and to use their credibility in the organization to make things happen. The ATLAS implementation team comprising numerous nationalities was located in a separate building in Amsterdam and headed by the General Manager of the Dutch operating company.

The aim of the implementation team was to work to the institutionalization of a new configuration of European operations with both central, country, and field responsibilities for direction setting & innovation, sales & order management, and delivery (see Figure 9.15). Regarding the first, the intention was to create a Marketing Center of Competence to concentrate critical skills and whose mission would be to bring a more uniform and better coordinated approach to current markets and channel ideas from local markets. Moreover, the Marketing Center of Competence would develop consistent frameworks across countries in several areas such as segmentation, competitive intelligence, product planning, and promotion. Local marketing resources would take care of the implementation of marketing strategies at the local level and would feedback local marketing information to the Center of Competence. For

sales and order management the intention was to create a Sales Coordination function that centrally optimizes workload distribution while the detailed sales planning activities would remain local. Furthermore, sales activities would be streamlined and reorganized but kept under local control in an effort to keep these activities as close to the customer as possible. Centralized coordination would take care of the integration, central research and development, and the detection of knowledge transfer opportunities. With respect to delivery, it was decided that book production would remain a locally managed process while the procurement of paper and printing services would be centrally coordinated to exploit economies of scale.

The implementation team that was responsible for the institutionalization of this new configuration of the European operations worked within a clear structure (see Figure 9.16). The program director had overall management oversight on the program and was responsible for defining and imparting the program vision to various project teams, arbitrating and resolving conflicts between teams, and working closely with project managers. The program director had to take care of the integration of all individual plans into a global change management master plan. Per topic area, a project manager got the responsibility to implement the ATLAS blueprint. Actively assisted by personnel in the operating companies, the project manager has to come up with solutions for the group at large and hence solutions which are commonly applicable and easily transmittable. To enable overall ATLAS program management (e.g., operating analysis, risk management, shared services support, communication), a program office was established to act as the coordination board across projects for support from shared services such as information technology, human resources, legal, and facilities.

The rationale behind the establishment of such a centralized implementation team, as argued by one of the consultants, was threefold. First, by concentrating critical skills, one can make good use of scarce resources and expertise and hence develop optimal solutions. Subsequently, these solutions can be optimally exploited because the implementation team should have the authority to prescribe methodologies, systems, and best practice procedures to

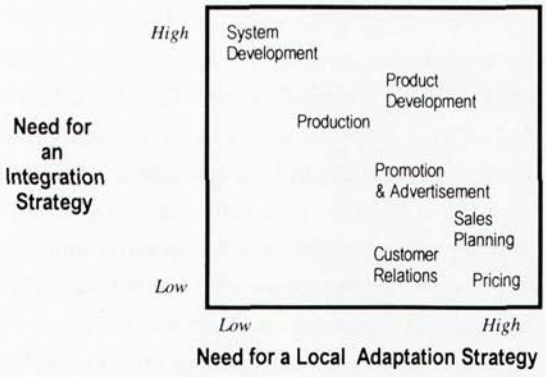
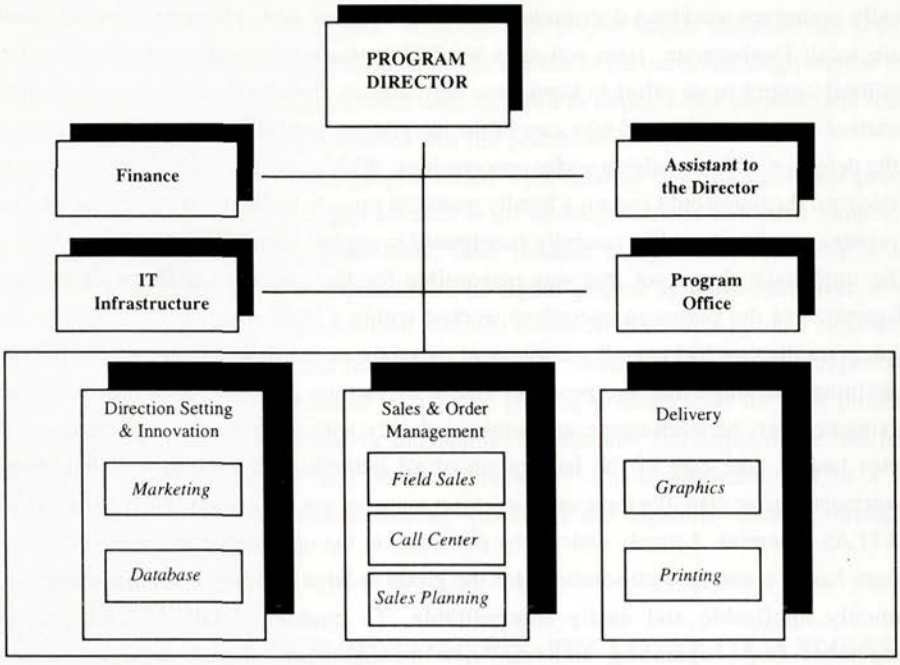


Figure 9.15: Balancing the Needs for Integration and Local Adaptation.



Adapted from Project "ATLAS" Documentation.

Figure 9.16: Project ATLAS Organization Phase II.

be followed by countries. Second, the centralized implementation team defines approaches, procedures, and formats that allow to compare results (e.g., market research, product launches). Comparable measures trigger learning from internal best practices, a major imperative to intracorporate knowledge sharing. Third, a centralized knowledge base with best practice know-how and commonly applicable support systems, creates opportunities for further expansion into other countries and strongly related markets. Once the skills and know-how are developed in a universally applicable way, it can be quickly implemented in and supplied to new business ventures.

The concentration of knowledge development activities will become, if successful, a stable element of the prospective ITT World Directories organization. "The idea is," as one of the team members stated, "that the ATLAS implementation will replace the European headquarters in Brussels eventually. [...] The accountants and controllers in Brussels lack the appropriate skills and radiation to direct and assist the prospective organization of ITT World Directories. Besides the responsibility for top and bottom-line, the operating units will become accountable for process organization and innovation adoption in the near future. The members of the ATLAS implementation team are most capable to act as the acknowledged superior for making any judgements in this respect." So knowledge champion and knowledge liaison roles were created which would be able to stimulate and facilitate the intracorporate knowledge sharing process in the future.

9.6 SUMMARY AND CONCLUSIONS

For more than thirty years, ITT World Directories has never showed much interest in the competitive advantages of its subsidiaries. Based on governmentally granted monopoly positions in highly attractive marketplaces, ITT World Directories could "milk" their yellow pages operations without harming the continuity of the business. In a more dynamic business environment, however, as stressed by Stalk *et al.* (1992), strategy has to become correspondingly more dynamic. Instead of a "war of position," competition becomes a "war of movement" in which success depends on the anticipation on market trends and quick responses to changing customer needs. Starting from a position where both market knowledge and firm-specific expertise did not significantly affect operating performance, ITT World Directories was forced to develop a new competitive strategy. This strategy not only had to be based on a well-informed organization regarding market developments and demands, but also depended upon the creation of an organizational groundwork compromising distinctive expertise in critical areas for Yellow Pages companies like sales techniques, electronic media, graphics, database systems, information management, marketing skills, and directory distribution.

This changing knowledge environment, combined with the new corporate philosophy emerging after the split of ITT into three companies, called for intracorporate knowledge sharing as a strategic issue for ITT World Directories. ITT World Directories governs a broad spectrum of both market and expertise-specific knowledge items ready to be exploited via its network of operating companies. Moreover, the links of ITT World Directories with L.M. Berry & Company and BellSouth, its U.S. business partners, provide additional resources and access to innovative methods, technologies, and business experience. A history of unit independence and headquarters' traditional emphasis on the achievement of financial targets, however, have over time created significant barriers to cross-unit cooperation. Additionally, ITT World Directories' top management has not been able establish and institutionalize a balanced set of management tools to stimulate and facilitate the leverage of internally available knowledge items.

In this case study we did not, like we did in the Unilever and Canon cases, enumerate and scrutinize a number of implemented management tools affecting the barriers to intracorporate knowledge sharing. Instead we focused on a change process by describing some subsequent steps in World Directories' business transformation endeavour. By studying the managerial actions that precede the intracorporate knowledge sharing process itself over a period of two years, we provided this research project with an additional and interesting viewpoint on the key managerial issues surrounding the stimulation and facilitation of intracorporate knowledge sharing. In the following of this concluding section, the prevailing situation within ITT World Directories is confronted with the ideas and propositions as presented in the theoretical part of this study. By reviewing whether, which, and how many management tools of the knowledge sharing management systems could be discerned within the confines of the ITT World Directories organization, some tentative conclusions can be formulated on the barriers that still

obstruct and hinder the intracorporate knowledge sharing process in this particular organization.

A very limited number of "stimulators" and "facilitators" exist today in the ITT World Directories organization and many barriers are still obstructing and complicating the transfer of internally available knowledge items. The prospective organization, implemented in the second half of 1997, has the potential to improve upon this situation significantly. ITT World Directories, however, is still only at the beginning of a long process of learning to manage intracorporate knowledge sharing. Moreover, both managers and employees acknowledge the fact that this process is the "lifeblood" of the corporate whole.

PROPOSITION #1: KNOWLEDGE SHARING AWARENESS SYSTEM

Although not deliberately institutionalized to stimulate the exchange of internally available knowledge, a limited number of management tools decreasing the obstructing influence of the awareness barriers can be discerned within the confines of the ITT World Directories organization. For example, general managers from headquarters and operating companies meet on a regular basis. During these management meetings, they discuss actual performance vis-à-

THEORETICAL PART	**KNOWLEDGE SHARING AWARENESS SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Knowledge Codification, Registering, and Storage Networking Assigning Knowledge Exploration Responsibilities Institutionalizing Knowledge Sharing Intermediaries Implementing Internal Benchmarking Procedures
EMPIRICAL PART	ITT WD'S MANAGEMENT TOOLS - General management meets on a regular basis and shares, in very general terms, some of the developments going on in their operating companies. - Although a Centre of Competence in the Information Technology area was established at the end of the 1980s, the credibility of this "knowledge centre" has always been very low affecting its effectiveness in reducing duplicate developments. - Some liaison roles in the IT and marketing area were created in the past but have never been very effective due to the lack of "decision power".	ITT WD: REMAINING AWARENESS BARRIERS (1) Excluding the general managers, ITT World Directories' employees have no or limited chances to meet their colleagues of other operating subsidiaries. Consequently, no or a very limited number of people has built an informal network throughout the firm. (2) Usually, ITT World Directories' managers tend to emphasize and perceive the differences instead of the communality between the business processes. (3) Knowledge items are not developed with the concern to roll them out to other business-units of ITT World Directories and are weakly codified. (4) The number of procedures you have to go through to get the authorization to invest in a development project has resulted in the existence of many "unreported" and "hidden" R&D project.

Table 9.5: The Knowledge Sharing Awareness System.

vis planned objectives and deliberate on appropriate forecasts. These international management meetings can also be suitable for sharing experiences and informing colleagues on current business developments inside the operating companies. In practice, however, the managers involved in these meetings often lack the detailed functional know-how and experience which is most valuable for other affiliates in identifying shared problems and in achieving advancement in solving particular business problems. Moreover, business managers are often concerned that involving managers from the corporate center or from the other operating companies will affect the autonomy of the operating unit.

Other initiatives which could help in informing front-line managers on opportunities to leverage internally available knowledge are the establishment of the Competence Center on information technology (i.e., ITT Publitec) and functional liaison members. Within the confines of ITT World Directories, however, their effectiveness, as explained before, has been very limited. Total accountability for short-term bottom and top-line performance combined with a generous management bonus system for reaching targets, made all corporate attempts to guide and direct the companies on a functional level susceptive to fail. Moreover, ITT World Directories has focused on the perceived differences instead of the communality between its subsidiaries for many years. Although all the operating units produced a paper-based yellow pages product and acted as an intermediary between suppliers and buyers in their country, variance in business strategies and processes made both corporate and front-line management emphasize the need for differentiated solutions. Common solutions were refused based upon arguments concerning differences between the companies, a lack in their ability to acknowledge similarities, and the highly valued autonomy of local operations.

So, regarding the discerned management tools of a knowledge sharing awareness system we can conclude that the number and the effectiveness of the implemented "stimulators" within the confines of the ITT World Directories organization were virtually non existent. As a consequence, front-line managers are confronted with significant awareness barriers blocking their ability to unfold the opportunities to leverage internal knowledge resources. Knowledge items, for example, were not registered or documented in a systematic way, front-line managers never received instructions to develop solutions with concern for general applicability and transferability, and the possibilities to find a way to valuable knowledge items scattered over the network of operating companies were very limited. Intentions to contact colleagues in other units were often demotivated based on hidden agendas and unauthorized investments in exploration and development activities.

PROPOSITION #2: KNOWLEDGE SHARING PERSUASION SYSTEM

After becoming aware of an intracorporate knowledge sharing prospect, both the knowledge donor and knowledge recipient have to be persuaded to commit themselves to the transfer of the knowledge item. In the particular situation of ITT World Directories, the initiation of intracorporate knowledge sharing efforts was obstructed by significant interest barriers related

THEORETICAL PART	**KNOWLEDGE SHARING PERSUASION SYSTEM** *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects*	RELATED MANAGEMENT TOOLS Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share	THEORETICAL PART
EMPIRICAL PART	ITT WD'S MANAGEMENT TOOLS	ITT WD: REMAINING INTEREST BARRIERS (1) Knowledge donors are not eager to transfer their knowledge to other affiliates of ITT World Directories because corporate management demotivates inter-subsidiary cooperation, no rewards can be expected for the invested management time, and being perceived as being ahead of the rest often creates some advantages in the negotiations with the HQ and during internal benchmark efforts. (2) Managers in the subsidiaries of ITT World Directories are not eager to adopt knowledge items from the other affiliates of ITT World Directories because of the Not-Invented-Here syndrome, it is more "fun" to develop something totally new and fully adapted to the company's particular needs, no rewards can be expected, and the felt need to preserve the status quo.	EMPIRICAL PART

Table 9.6: The Knowledge Sharing Persuasion System.

to both knowledge donor and recipient. On the one hand, knowledge donors were not eager to transfer their knowledge to other affiliates of ITT World Directories because corporate management never created a corporate culture that stimulated inter-subsidiary cooperation. No incentive was put on the donor's willingness to invest its scarce management time in an effort to transfer its knowledge to a recipient. Moreover, being ahead of the "others" was generally perceived as being advantageous. Maximum operational leeway could be gained by individual companies as these units were being recognized by corporate management as the most advanced and leading company in many aspects of the business. Consequently, from the perspective of the knowledge donor, advancing internal competitors could reduce this lead position and hence affect its development budgets and degrees of freedom.

On the other hand, the Not-Invented-Here syndrome was more than prevalent. Adopting solutions from another operating company was generally perceived as "not done." By accepting the know-how of a "competing" company, one was accepting its lead status and this could seriously affect the firm's budget and autonomy. Moreover, awards and bonuses were allocated to persons who had developed major innovations and not to those who exploited these innovations. As a consequence, knowledge exploration was felt as more profitable for the subsidiary's employees than just exploiting the solutions of someone else. Moreover, front-line

managers were sceptical with respect to handing over knowledge development responsibilities to "outsiders." They strongly believed that the local adaptation of the knowledge item would suffer from handing over the work to an operating company which would develop the solution on a distant and probably without consideration of the actual business problem.

Considering the disinterest of the knowledge donors and recipients, combined with the limited need to change due to the stable market circumstances, operating units came to be totally self-sufficient and inward-looking. Corporate management implemented no "stimulators" to increase the interest throughout the firm to share knowledge. In corporate management's attempt to tear companies apart to be able to weed out low-profit activities and "squeeze" the most out of the highly profitable ones, cooperative relationships were demotivated.

PROPOSITION #3: KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM

If a knowledge item is detected and the transferor and acceptor agree upon their involvement, the actual transfer process can start. If no measures are taken, however, as was the case in the particular situation of ITT World Directories (see Table 9.7), numerous deterrents can significantly complicate successful effectuation. As stated before, knowledge items are developed and adapted for the local company without any concern for its transferability and demonstrability. Solutions are not designed to be easily transmittable to and applicable by other operating companies of ITT World Directories. Moreover, the differences in process definitions and enabling systems strongly complicate the intracorporate knowledge sharing process. In the past, these differences have often led to the situation in which newly developed systems were non-compatible with the system configurations of the other operating companies. High investments were necessary to adapt the system to the particular requirements of a business units while the end result was often sub-optimal.

Furthermore, the neglect of the cultural differences between the European nationalities and the lack of experience to communicate with their international colleagues further complicated the knowledge transfer process within ITT World Directories. The lack of inter-cultural communication skills has often affected the mutual understanding and a strong feeling of distrust resided deeply in the organization regarding inter-subsidiary cooperation. Combining all these complicating barriers with the hesitance of both the knowledge donor and recipient to participate in the transfer of internally available knowledge items due to such factors as the lack of both monetary and subjective rewards and a strong presence of the Not-Invented-Here syndrome, made the transfer of knowledge within the ITT World Directories organization a very difficult task. The complexity barriers are significant and strongly affect the effectiveness and efficiency of the "sharing" effort. Although some initiatives to share knowledge are planned within the setting of the ATLAS project, ITT World Directories needs to acknowledge these barriers and their negative influence on the execution phase of the intracorporate knowledge sharing process.

THEORETICAL PART	**KNOWLEDGE SHARING COMPLEXITY REDUCTION SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing*	RELATED MANAGEMENT TOOLS Knowledge Abstraction & Codification Increasing User Involvement & Triability Establishing a Corporate-Wide Language Arranging Regular Management Meetings Dominant Corporate Culture Financial Measures and Rewards for Knowledge Sharing Commitment and Formal Statements by Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure to Share
EMPIRICAL PART	ITT WD'S MANAGEMENT TOOLS	ITT WD: REMAINING COMPLEXITY BARRIERS (1) Knowledge items are developed and adapted for the local company alone without attention for the transferability and demonstrability. Moreover, knowledge items are weakly codified. (2) The differences in process definition and the enabling systems strongly complicates the intracorporate knowledge sharing process. (3) Due to a lack of experience to communicate with their international colleagues, cultural understanding affects the mutual understanding. Moreover, US managers to neglect the cultural differences. (4) Both the knowledge donor and the possible recipients are not eager to participate in the transfer of internally available knowledge items due to the lack of both monetary and subjective rewards, strong presence of the Not-Invented-Here syndrome, lack of a corporate identity, etc. (5) Strong feeling of distrust resides deeply throughout the organization with respect to international colleagues.

Table 9.7: The Knowledge Sharing Complexity Reduction System.

PROPOSITION #4: KNOWLEDGE SHARING MEDIA SYSTEM

In the end, front-line manages will need appropriate media to facilitate their transfer of knowledge ranging from a telephone to "on-the-job" teaching activities by the knowledge donor. Although the conventional communication tools like fax and telephone can be used, ITT World Directories is still missing enhanced management tools in the more rich communication transfer channels. Although a selected group of managers is expatriated on an almost continuous basis and is highly involved in all kinds of international management meetings, 99% of the employees of ITT World Directories has no or very limited contact with his or her international colleagues and is also not motivated to intensify these relationships. Managers are not deliberately expatriated to other operating companies to leverage their particular skills and experience. Only rarely are operational managers brought together to share

THEORETICAL PART	**KNOWLEDGE SHARING MEDIA SYSTEM** *The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation*	RELATED MANAGEMENT TOOLS Knowledge Transfer Skill Development Advanced Communication Technologies Expatriation Strategy
EMPIRICAL PART	ITT WD'S MANAGEMENT TOOLS - Selected group of managers which is expatriated on almost a continuous basis has the skills to communicate on an inter-company level.	ITT WD: REMAINING MEDIA BARRIERS (1) Although knowledge transfer media are almost never necessary, there are no investments done in the development of an advanced communication system or the improvement of the knowledge transfer skills of the employees. Only conventional communication technologies are used (e.g., telephone, fax). (2) Only a limited set of people possess the intercultural skills to effectively and efficiently transfer knowledfge on an inter-subsidiary basis.

Table 9.8: The Knowledge Sharing Media System.

their know-how in a management meeting. Moreover, ITT World Directories has not managed to establish a more advanced communication system linking the employees throughout the organization and enabling the smooth, flexible, and successful exchange of information, experience, and know-how (e.g., teleconferencing, E-mail, videoconferencing). Consequently, besides the presence of significant awareness, interest, and complexity barriers, media barriers are only reduced in a piecemeal way and hence still hindering the intracorporate knowledge transfer process.

The prospective organization has to improve the stimulating and facilitating properties of ITT World Directories regarding intracorporate knowledge sharing. Although not operational yet, the unfolding organization seems to be far better capable to manage and balance the knowledge exploration and exploitation process than the traditional configuration. A new kind of management style will have to be established with a better acknowledgement of both the needs for integration and local adaptation. A more integrated network of operating companies has to be created with centralized databases, bulletin boards, and electronic communication media ensuring an appropriate flow of information on existing problems, knowledge development projects, and optional or implemented solutions. Instead of a one-sided focus on the achievement of top and bottom-line targets, firms will have to be stimulated and evaluated on qualitative measures like their contribution to the generation of corporate value. Corporate Competence Centers will have to be institutionalized to concentrate development resources, reduce the duplication of development work, and leverage the generated solutions for common

business problems. Moreover, the transferability of knowledge items throughout the organization will be improved due to the growing mutual understanding in terms of business strategy and organizational processes and the implementation of common or compatible business systems.

However, at the end of 1996, the very moment this case study was completed, ITT World Directories had still a long way to go. Although the ideas and implementation plans look promising at face value, interviews in the operating units learned that a lot of the inherited distrust still exists in the organization. Particularly at those employees who were not involved in the ATLAS project and hence were not confronted with the changing atmosphere in the ITT World Directories organization, scepticism is still predominant. These employees still see the same managers heading ITT World Directories who tried to "squeeze" them out year after year. Top managers who have to adopt a totally new kind of management style in which operating companies and their front-line managers are motivated and rewarded to unite ITT World Directories' internal strengths instead of "milking" the most out of each of them. Changing the strong scepticism throughout the organization constitutes a major effort. More subtle management tools like management recruitment, development, and socialization should be exploited to create a corporate identity and reduce the barriers to cross-unit cooperation on the longer term. Only by significantly reducing the level of distrust in this organization, the prospective changes could succeed. Moreover, as token of their esteem, top management should highly commend cooperative efforts in the organization and communicate this clearly throughout the organization. Only by creating a corporate culture which strongly approves, stimulates, and rewards such activities as intracorporate knowledge sharing, the prospective plans could prove to be an effective reaction to the dramatically changing business environment of ITT World Directories.

10 Summary & Conclusions

"One characteristic of high-performing organizations is a 'we-can-learn-from-anyone' attitude. These organizations are able to accelerate their rates of learning and change by borrowing ideas from both internal and external sources. These high-performers then tailor the ideas to suit different situations and needs. They have escaped the 'not-invented-here syndrome.' Their culture, rewards, and recognition systems support borrowing ideas as much as creating ideas."

- Bogan and English (1994: 271).

10.1 INTRODUCTION

In this thesis, the firm has been conceptualized as a set of resources embedded in an organizational framework. The resources can be seen as having a (theoretical) hierarchy of rent-earning uses, bounded at one extreme by a hypothetical "salvage value" and at the other by an "optimal use" (Barney, 1986). Managerial value creation takes place when the assets are positioned at higher levels in these hierarchies of uses and knowledge is a critical resource in this respect. "The possibility of using services," Penrose (1959: 76) states, "changes with changes in knowledge. More services become available, previously unused services become employed and employed services become unused as knowledge increases about the physical characteristics of resources, about ways of using them, or about products it would be profitable to use them for." The organizational framework can provide higher-order organizing principles such as shared coding schemes, shared values, and a shared language (Kogut and Zander, 1992) which are prerequisite for successfully managing intracorporate knowledge sharing. Above all, it can be a more efficient organizing mode than the market due to numerous knowledge-based transaction costs over and above the opportunistic considerations explored by Williamson (Conner and Prahalad, 1996).

A knowledge-based view seems particularly interesting and complementary to the contractual view on the firm (Coase, 1937; Williamson, 1985) because it can create a consistent basis for explaining performance differences between competing firms (Foss, 1996).

Competitive advantage is created and sustained by applying knowledge to the firm's resources and in this conception intracorporate knowledge sharing reinforces an affiliate's competitive strategy. By transferring information, experiences, know-how, and skills between subsidiaries, a multi-business firm can attain, if managed appropriately, savings in knowledge procurement expenses, contribute to the achievement of "best practice" levels wherever needed and appropriate to circumstances, and increase the quantity and quality of innovations of the affiliates involved. By securing an efficient and effective provision of the critical input factor knowledge, a firm's competitiveness can be strengthened. Competitive advantage in turn produces above average operating results and hence value for the firm's shareholders (see Figure 10.1).

The observation that leveraging the corporation's intellect is important, however, is not new or distinct from what has been said by other authors (e.g., Bartlett and Ghoshal, 1990; Prahalad and Hamel, 1990). What is stunning is that few academics have systematically attacked and investigated the managerial issues surrounding the leverage of the firm's knowledge reservoir from a corporate management perspective. Many accounts have been written on strongly related topics such as the particular characteristics of the knowledge concept (e.g., Winter, 1987; Von Krogh and Roos, 1994), on organizational learning processes (e.g., Argyris and Schon, 1978; Senge, 1990; Huber, 1991), on organizational defences against technology transfer and innovation diffusion (e.g., Glaser, Abelson, and Garrison, 1983; Rogers, 1995), on determinants of the stickiness of knowledge (e.g., Von Hippel, 1994; Szulanski, 1995a) and on managing the multinational enterprise at large (e.g., Hedlund, 1986; Prahalad and Doz, 1987). Although some material will undoubtedly exist, publications that systematically address the role of corporate management in stimulating and facilitating intracorporate knowledge sharing between the firm's internationally dispersed subsidiaries are very hard to find.

In this thesis it has been tried to acquaint the reader with the managerial issues surrounding intracorporate knowledge sharing and to contribute to the strategic management literature by creating a ground to steer further theoretical and empirical research on this particular knowledge activity. Guided by the principal research question *"How to manage intracorporate knowledge sharing between the internationally dispersed companies of a multinational*

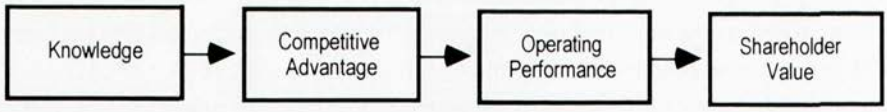


Figure 10.1: A Knowledge-Based Perspective on Value Creation.

enterprise?", this research project resulted in the formation of an integrative framework with respect to managing intracorporate knowledge sharing. This framework has been designed to allow for the observation, analysis, understanding, and normative assessment of the managerial tasks and responsibilities regarding the corporation's intracorporate knowledge sharing efforts. Embedded in the strategic management and international business field, it integrates three key contributions:

- a conceptualization of the intracorporate knowledge sharing process;
- a managerial classification of the barriers to intracorporate knowledge sharing; and
- an integrated set of propositions on the management systems stimulating and facilitating intracorporate knowledge sharing.

Three comparative case studies have been performed to illustrate knowledge sharing activities, barriers, and management tools in practical settings. In this way, propositions and preliminary conclusions on prevailing combinations of management tools and the alternative ways of implementing them achieved the necessary empirical support.

In this concluding chapter, the main conclusions of this research project are discussed and synthesized. After briefly summarizing the content of the theoretical and empirical part of the study, some tentative conclusions are drawn without generalizing these findings beyond the situation in a particular case company. The inherent strengths and weaknesses of the methodology, the added value of the research findings, and suggestions for further research are enumerated and discussed in the final section.

10.2 CONFRONTATION OF THE THEORETICAL AND EMPIRICAL FINDINGS

Intracorporate knowledge sharing has been defined as the initiation and effectuation of a knowledge flow between two or more companies legally belonging to the same corporation. It is an important process for leveraging valuable knowledge items and serving front-line managers' quest for knowledge. The knowledge flow, following Gupta and Govindarajan (1991: 773), could comprise either expertise or market knowledge. Expertise is the firm's craftsmanship, often referred to as skills, capabilities, and competences, and can be related to input processes (e.g., purchasing skills), throughput processes (e.g., product design, process designs, packaging designs), or output processes (e.g., marketing know-how, distribution expertise). It is the knowledge underlying the firm's ability to produce and market the products of today and generate the product and process innovations for the product offerings of tomorrow. Market knowledge is the firm's information on and understanding of the circumstances and developments in a particular marketplace (e.g., customer demands, strategy of competitors, supplier proliferation). Market knowledge underlies the firm's ability to

customize and adapt its product offerings and operations to the local needs and demands, and to apply expertise in such a way that it makes a difference in the minds of both customers, intermediaries, and other stakeholders. Excluded in this research project are the transfers of either internal administrative information (e.g., financial data or management accounting information) and general management information because these processes are not aimed at leveraging internally available knowledge but primarily at influencing the front-line managers of the affiliates on management issues of strategic direction, resource allocation, financial planning, and control.

THE THEORETICAL PART OF THE STUDY

In the theoretical part of this thesis, we stressed that the challenge of managing intracorporate knowledge sharing is not one of unlimited promotion. Firms differ regarding the requirements put upon intracorporate knowledge sharing and corporate management should acknowledge this idiosyncrasy. We presumed that the required level of intracorporate knowledge sharing is determined, to a large extent, by two determinants, being a firm's knowledge environment and its corporate strategy. A firm's knowledge environment is defined in terms of the emphasis placed upon expertise and market knowledge in the affiliates' strive for competitive advantage in their product markets. In some industries firms compete on their control over firm-specific expertise (e.g., computers, chemicals, consumer electronics, copiers), while in other industries the possession of market information and the generation of clear consumer insights is the critical and decisive success factor (e.g., foods, cosmetics, recreation). The importance of intracorporate knowledge sharing grows, we argued, with the increasing importance of either of these types of knowledge, but tends to "explode" if the cross-fertilization between expertise and market knowledge becomes a critical success factor.

Apart from the influence of the knowledge environment, the required level of intracorporate knowledge sharing is assumed to be determined by the firm's corporate strategy in terms of added value as well as its scale and scope. Intracorporate knowledge sharing is a primary knowledge management process and should therefore be treated in accordance with corporate objectives regarding other kinds of synergies (e.g., operational integration, knowledge exploration). The more top management and corporate strategy emphasize the exploitation of the dispersed stock of intellectual property as one of the main sources of corporate value creation, the higher the need to share knowledge. The relatedness of the corporation's portfolio of business activities and the size of the corporation in terms of the number of governed companies were presumed to be both positively related with the required level of knowledge sharing between the affiliates of a multinational enterprise.

Managing intracorporate knowledge sharing means achieving a "fit" and hence matching the actual level with the required level of intracorporate knowledge sharing (see Figure 10.2). Assuming limitations in its ability to pursue an active role in sharing knowledge, corporate management has the responsibility in this particular endeavour to create a structural context

within which opportunities for linkages between subunits can arise, be detected, and be effectuated. In shaping this context, top management should acknowledge the firm's administrative heritage and select the most appropriate management tools to influence the behavior of managers lower down the organizational hierarchy. In its ambition to bring the actual level of intracorporate knowledge sharing in line with the aspired level, top management should target its broad repertoire of management tools at neutralizing and minimizing the barriers to the transfer of know-how, skills, and experience. In other words, headquarters should enable front-line managers to initiate and effectuate intracorporate knowledge sharing efforts. Without these tools, opportunities to share internally available knowledge are less likely to be exploited and can resolve into unsatisfactory outcomes.

In our search for those management tools which a firm's top management can use in stimulating and facilitating intracorporate knowledge sharing, the deductive reasoning has been built upon an understanding of the barriers obstructing, hindering, and complicating the successful initiation and effectuation of knowledge transfer efforts. The existing literature enlists numerous barriers to the transfer of knowledge and hence the conceptual and practical challenge was not to detect new barriers to intracorporate knowledge sharing but to make managerial sense of the number and range of possible deterrents. Therefore, the intracorporate knowledge sharing process has been conceptualized to be able to cluster the voluminous set of barriers around particular stages and in this process a distinction has been made between the phases of decision and execution. The decision phase comprises an awareness and an interest stage, while the execution phase consists of a preparation and a transfer stage.

The *decision phase* of the intracorporate knowledge sharing process determines the number of times that an attempt is made to share knowledge. The decision phase is a critical phase because if one of the parties decides to withdraw and hence block the initiation of an intracorporate knowledge transfer effort, knowledge sharing and hence corporate value

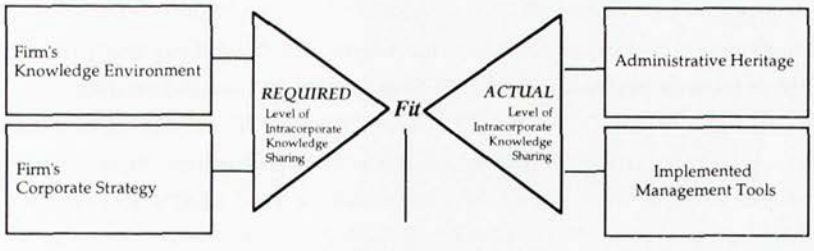


Figure 10.2 A Strategic "Fit" Model on Intracorporate Knowledge Sharing.

creation will not onset. Concerning the decision to initiate a knowledge transfer effort, two clusters of barriers have been distinguished: (1) *Awareness Barriers* and (2) *Interest Barriers.* Awareness barriers are deterrents obstructing front-line managers to detect opportunities to share knowledge within the boundaries of the enterprise. Awareness barriers cause a passive rejection, meaning that the adoption of a particular knowledge item is never accomplished because its use is never really considered, and can be caused by tacitness of knowledge, lack of "who-knows-what" facility, bootlegging, and cognitive limits to discern knowledge. Interest barriers block the initiation of an intracorporate knowledge sharing effort based on efficiency or personal rationales. The efficiency trade-off attempts to put a money value on the tangible and intangible costs and benefits related to the initiation and effectuation of a particular intracorporate knowledge sharing project, while the personal considerations could be related to such factors as the "not-invented-here" syndrome, the lack of rewards, and the existence of internal competition.

In its task to "stimulate," a firm's top management has to enlarge the number of knowledge sharing initiatives by influencing the decision-making process of those employees lower down the hierarchy to participate in the supply, reception, and application of internally available knowledge. On the basis of the distinction between the awareness and interest barriers to the initiation of knowledge transfer efforts throughout the organization, two preliminary propositions have been deduced:

Proposition (P1):

The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects.

Proposition (P2):

The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects.

The management system which informs employees throughout the firm regarding intracorporate knowledge sharing opportunities and in this way reduces the awareness barriers to initiation is called a *Knowledge Sharing Awareness System.* The management system which stimulates employees' interest to participate in intracorporate knowledge sharing efforts and as a consequence reduces the interest barriers to initiation is called a *Knowledge Sharing Persuasion System.*

The *execution phase* influences the efficiency and effectiveness of the knowledge transfer effort and hence the added value of the knowledge sharing initiative. After making the decision to initiate an intracorporate knowledge sharing project, the execution phase concerns those activities that put the knowledge item into use and ensures its integration in the knowledge reservoir of the recipient. Concerning the effectuation of a knowledge transfer effort, two

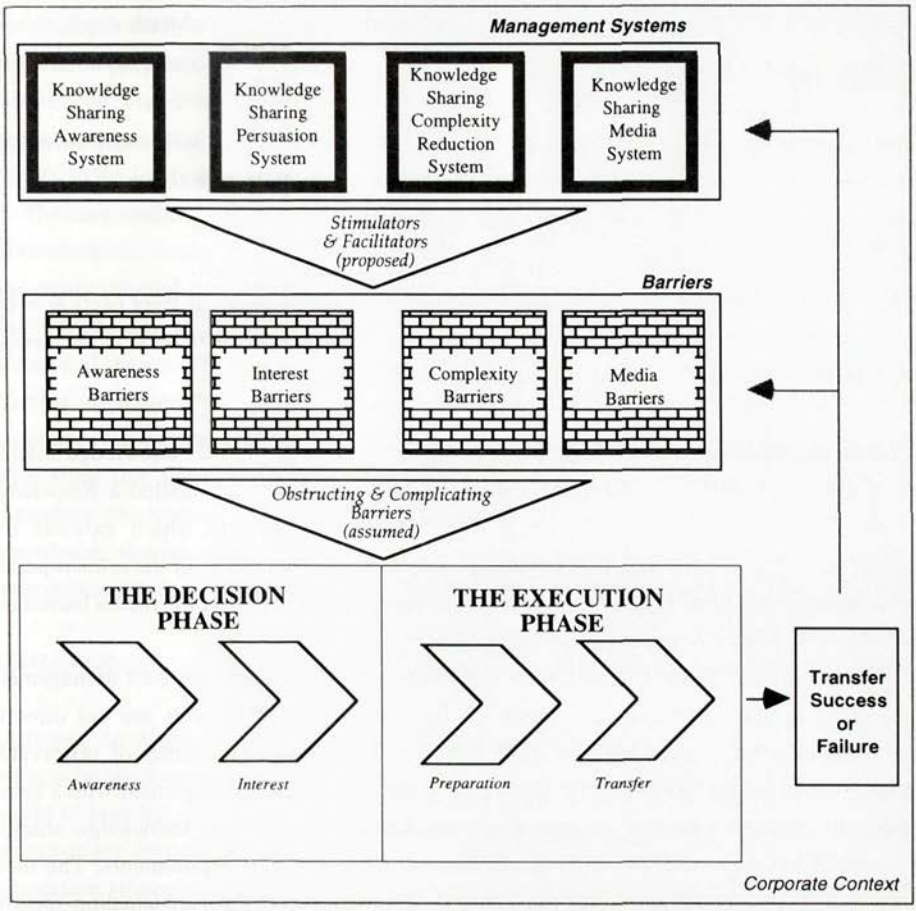


Figure 10.3: Integrated Framework on Managing Intracorporate Knowledge Sharing.

clusters of barriers have been distinguished: (1) *Complexity Barriers* and (2) *Media Barriers.* Complexity barriers complicate the effectuation of a knowledge transfer effort from the donor to the acceptors. The complexity of intracorporate knowledge sharing can be based on numerous factors such as the nature of knowledge, heterogeneity of prior knowledge, personal motivation, and the level of trust between the actors involved. Media barriers hinder the ability of front-line managers to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation and hence to cope with the remaining complexity in a particular intracorporate knowledge sharing project. Media barriers are caused by resource constraints in terms of management time and advanced communication tools and by underdeveloped knowledge transfer skills.

In its task to facilitate, a firm's top management has to take actions to influence the successful effectuation of intracorporate knowledge sharing efforts. The appropriate conditions have to be created for effectuating the transfer and deployment of knowledge between a firm's

front-line managers in a productive way. On the basis of the distinction between the complexity and media barriers, two preliminary propositions have been deduced:

Proposition (P3):

The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing.

Proposition (P4):

The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation.

The management system which reduces the complexity of intracorporate knowledge sharing and, in this ways, decreases the complexity barriers to effectuation is called a *Knowledge Sharing Complexity Reduction System.* The management system which extends the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation and hence reduces the hindering influence of the media barriers to effectuation is called a *Knowledge Sharing Media System.*

A firm's top management should take steps in line with the four proposed management systems. As conceptual constructs, however, these management systems are not directly observable in practical settings and have therefore been defined in terms of observable management tools (see Exhibit 10.1). These tools provide corporate management with a broad arsenal of concrete weapons to give form and content to the four knowledge sharing management systems, adapted to firm-specific circumstances and requirements. The most suitable set of management tools and the best way of implementing them are situation-specific and hence dependent on unidentified contingencies.

THE EMPIRICAL PART OF THE STUDY

With the exception of some early checks and pilot studies, the empirical research succeeded the theoretical part of the study and hence started off with the integrated framework, as depicted in Exhibit 10.1. The empirical research was aimed at illustrating knowledge sharing activities, barriers, and management tools in practical settings. The case study strategy has been applied because the boundaries between phenomenon and context are not clearly evident yet. The theoretical part of the study has identified some of the key constructs and variables but the issue of how to manage intracorporate knowledge sharing between the internationally dispersed companies of a multinational enterprise still faces a lack of structure. If carefully performed, a case study can devise a case description against which researchers and managers can compare their own theoretical constructs and practical experiences. In specifying the

population and hence the number of case study objects, the decision was made to effectuate one in-depth study of a large enterprise and a more limited inquiry within two other firms for replication purposes. The three case study corporations have been chosen based on contextual differences. The diversity among the corporations involved brought into focus differentiated perspectives on the issue of managing intracorporate knowledge sharing and, as expected, variety in the implemented management tools.

The case studies have been effectuated by using a variety of data sources, being publication in newspapers, magazines, and journals, interviews with corporate and front-line management, and many internal documents regarding issues related to managing intracorporate knowledge sharing. The case descriptions are roughly structured according to the concepts determining the actual and required level of intracorporate knowledge sharing. Due to the focus on and large number of interviews with corporate management, a corporate management perspective dominates the case study descriptions. If possible, however, the researcher arranged interviews with front-line managers in the firm's subsidiaries to validate the tentative conclusions regarding the implemented management tools stimulating and facilitating intracorporate knowledge sharing in a particular firm inferred from the review of external publications, interviews with corporate management and the analysis of internal documentation.

UNILEVER

Unilever, an Anglo-Dutch corporation belonging to the 20 largest companies in the world, aims to be the foremost company in the world in meeting daily needs of consumers across the world in branded consumer foods, personal products and detergents. In this strive, Unilever is increasingly forced to complement its traditional strengths in the effectuation of local adaptation strategies with a reduction in sourcing and manufacturing costs, a higher speed of action, and entrepreneurship throughout its portfolio of businesses. The new competitive demands force Unilever to synthesize its businesses more strongly and Unilever's top management acknowledges that the development of an organizational capability to share information and know-how rapidly between companies on a global basis is prerequisite for the strategy's success. Unilever's endeavour to increase the actual level of intracorporate knowledge sharing, however, has been considerably hindered and complicated by Unilever's administrative heritage. Traditionally, management of independent operating companies hold a high degree of operating autonomy and agitate against corporate interference. Through the adaptation of the firm's management structure and the implementation of various management tools, however, corporate management has been working on the integration of its businesses.

CANON EUROPE NV

Canon is a Japanese corporation which is involved in various high-tech industries such as cameras and copiers. Canon's many innovative products are in large part the result of their

technological excellence and the capacity for managing rapid technological change. Increasingly, however, Canon is forced to rethink its traditional technology-oriented business strategy. Consumers are demanding more customized products as European and Japanese buyers start to differ significantly in their product feature preferences. Moreover, most of Canon's products are maturing and new market-oriented product innovations are becoming a necessity. On the short term, Canon has reacted to these challenges by advancing its abilities to collect, share, and aggregate market information on a European scale. In this way, Canon wants to go beyond the leverage of its technological excellence towards a cross-fertilization with the market knowledge residing in Canon's marketing and sales companies. On the longer term, Canon is inclined to believe that "overseas" product development and production activities have to be extended. A major business transformation process is necessary, especially because Canon's administrative history in Europe is one of operating through highly independent, sometimes partially owned distributors.

ITT WORLD DIRECTORIES, INC.

For more than thirty years, ITT World Directories, a division of the ITT Corporation, has never showed much interest in linking its affiliates in the aim to create corporate advantages. On the basis of governmentally granted monopoly positions in highly attractive marketplaces, ITT World Directories was able to focus on "squeezing" the most out of its local Yellow Pages operations. In the beginning of the 1990s, however, ITT World Directories was forced to change its corporate philosophy due to the emergence of head on competition in all its markets throughout Europe. Top management formulated the objective to unite the operating companies more strongly and work together in the sake of the corporate whole. It was clear from the start, however, that such an integration strategy would require a dramatic organizational change due to a deep feeling of distrust widely residing throughout the corporation regarding this kind of corporate initiatives. ITT World Directories decided to commit itself to a dramatic business transformation process, involving considerable costs but in the hope that it would significant improve its ability to unite and exploit its corporate resources and allow the operating companies to compete more effectively and efficiently in local Yellow Pages markets.

SYNTHESIS OF THE THEORETICAL AND EMPIRICAL PART

The empirical research indicates that the key contributions of this study lie in the various tools for analyzing and systematically reviewing the key concerns in managing intracorporate knowledge sharing. The strategic "fit" model, the conceptualization of the intracorporate knowledge sharing process, the managerial classification of the barriers to the initiation and effectuation of this process, and the integrated set of management systems that stimulate and facilitate intracorporate knowledge sharing have been applied successfully. All helped the

researcher in bringing order in this rather complex organizational phenomenon and were of assistance in identifying the key managerial issues involved in each organization. Moreover, the synthesis of the theoretical and empirical findings of this study led to some interesting conclusions.

With respect to one of the key assumptions underlying this study, we found that it is not totally sound to assume that a firm's top management would be willing to fully delegate the responsibility to initiate and effectuate intracorporate knowledge sharing efforts to their subordinates. We presumed that the complexity of many multinational enterprises inhibits an active role of corporate management in the intracorporate knowledge sharing process. Instead of being directly involved, we argued that the main task of corporate management comprises the stimulation and facilitation of this process between managers lower down the organizational hierarchy. In all case companies, however, top management was still involved in many if not all knowledge transfer efforts throughout the organization. Very rarely were intracorporate knowledge sharing efforts initiated and effectuated without the involvement of corporate management. Within Canon Europe NV it was even prohibited to exclude headquarters in attempts to share knowledge. As stated by Mr. Tanaka, President of Canon Europe NV, "... there is no communication between the companies directly. All communication needs to be routed through the European headquarters and for this purpose we have assigned a large cadre of liaison members. [...] Only in this way," Mr. Tanaka continued, "we make sure that we keep well informed about the key business issues and the concerns of our company managers. By being well informed we ensure that we are able to control the performance of our companies and react quickly to their key problems."

Unilever headquarters was attracted to the idea of delegating the responsibilities to initiate and effectuate, but had only slightly changed its attitude in this respect. In the past, knowledge always passed through the Center before it was transported to the appropriate companies. More and more, however, corporate managers experience that this is an impossible task because the Center lacks the necessary resources and capabilities to manage that process any longer. Although the liaison members still play a significant role in bringing employees together for knowledge sharing purposes, Unilever increasingly stimulates the operating companies to communicate and share directly with their colleagues in other companies. As one manager stated: "Historically, headquarters has been like a 'railway junction' with knowledge coming in and coming out. Now the center is more a 'signal box' attempting to route the knowledge from one place to another without the knowledge necessarily coming through the center." In general, however, managers in the Center are still tempted to interfere in and to be copied on knowledge transfers between companies. It seems that multi-business firms prefer a middle course between full decentralization and full centralization of the responsibility to initiate and effectuate the knowledge sharing process. In reality, however, corporate management has often problems in handing over this responsibility to managers lower down the organizational hierarchy on the basis of managerial or personal (e.g., information is seen as one of the most important "power" bases) concerns.

A second conclusion which can be deducted from the confrontation between the theoretical and empirical findings is that the knowledge environment of several firms active in the European context is changing. All three case companies were confronted with transitions in their knowledge environment and, related to this development, with a growing need to achieve a cross-fertilization between the firm's market knowledge and the firm's product and process expertise. Competitive forces or pro-active competitive moves by the firm itself enforce many managers to acknowledge simultaneously the importance of market information for customization, differentiation, and uncertainty reduction purposes and the importance of expertise for efficient and effective manufacturing practices and continuous product and process innovation. The assumed trend to decentralized business operations to ensure the appropriation of the necessary market information and to be able to achieve the necessary integration between expertise and market knowledge could not be verified by the empirical findings. However, the need was felt by all three case companies to evolve to a kind of decentralized network organization comparable with the transnational organization model as introduced by Bartlett and Ghoshal (1987), the heterarchy as described by Hedlund (1986), and the multi-center firm as studied by Forsgren (1990).

Regarding the firm's corporate strategy, the empirical findings indicate that intracorporate knowledge sharing, as one of the value-added strategies, is definitely winning in importance in justifying the corporate whole. All three case study companies were already discussing the particulars of this management issue and were trying to improve their ability to manage this process. In search for parenting advantages, Unilever, Canon and ITT World Directories identified the sharing of best practices and market information as an important way to reduce (development) costs, enable pro-active marketing strategies, and boost the innovative power of their business-units. Moreover, the case companies were eager to roll out innovations rapidly over the international network of operating companies to circumvent that competitors would be able to imitate them and steal their gain. So, our theoretical conclusion that the required level of intracorporate knowledge sharing is determined by the firm's corporate strategy comprising the value-added strategy and its scope and scale seems appropriate although some doubt exists regarding the relationship between the required level of intracorporate knowledge sharing and the firm's scope[1].

Regarding the firm's administrative heritage, the empirical findings have verified the expected strong influence of this factor on the issues and barriers surrounding intracorporate knowledge sharing. Unilever, Canon, and ITT World Directories all have a history of unit

---

[1] It is possible that the partially overlapping but broad product lines which multi-divisional types of organization posses, can provide them with an important strategic opportunity. If they manage intracorporate knowledge sharing among the less related parts of the corporation, they have the chance to capitalize on the increasingly complex nature of their markets in a way that a competitor with a more narrow range of capabilities will have a hard time to match. In this conception, Canon found it more important to manage intracorporate knowledge sharing on a cross-divisional than an one-divisional basis.

independence in Europe obstructing the integration and coordination of operations in this region. The high degree of operational leeway has created strong institutionalized differences in the definition of the business, organizational processes, and company "language." Moreover, the lack of integration in the past has made most companies emphasize and focus on differences instead of the communality between operations and marketplaces. Building on this diversity, firms active in Europe are forced, as argued before, to establish a more united and integrated European network of operating companies. Synergy should be exploited and knowledge items should be shared from the point where consumer needs are the same. The coherence at the foundation provides enough opportunities to share knowledge items without harming the requirements for local adaptation. In this respect, firms should both cherish and adapt their administrative heritage and start to build unity on diversity as a business response to the changing European context.

In managing the leverage of their knowledge reservoir, all three case companies lacked an overall perspective on this particular management issue and have not yet proved to be able to systematically attack all the issues involved in managing intracorporate knowledge sharing. Managerial responses, as indicated in Exhibit 10.1, are fragmented and are loosely integrated. Although the empirical research did not enable us to come up with some well founded conclusions regarding suitable combinations of management tools and preferable ways of implementation, some general conclusions can be drawn with respect to these management tools. First, one of the key findings of the empirical investigation is that many firms start their attempt to stimulate and facilitate intracorporate knowledge sharing with establishing state-of-the-art electronic linkages. Many enterprises that have acknowledged the importance of intracorporate knowledge sharing are frittering away their investments in technology. Intracorporate knowledge sharing problems are addressed by applying the new and more advanced communication technologies in an attempt to implement "electronic information spiderwebs" between the firm's subsidiaries. All the case descriptions have shown, however, that the act of intracorporate knowledge sharing is a highly complex managerial activity which requires a whole lot more than just the institutionalization of highly advanced communication tools like intranets, videoconferencing, and desk-top computing. Although these information technology tools are definitely helpful in managing intracorporate knowledge sharing, top management should acknowledge the fact that the transfer of knowledge remains a highly sensitive political process which is hindered by various knowledge-related complexities and deserves more creative and behavioral management responses than simply establishing an "electronic super highway" between the firm's subsidiaries.

Second, a rather new and popular phenomenon in many firms is the attempt to improve knowledge management abilities by institutionalizing what are called Centers of Competence, Centers of Excellence, or Innovation Centers. These development centers are established to concentrate development resources, reduce duplication in development work, and enable the firm to develop and launch a limited number of strong international brands. Moreover, by distributing the development responsibilities over the firm's affiliates, interdependencies are

Theoretical Propositions	UNILEVER
P1: Knowledge Sharing Awareness System *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system which makes employees aware of intracorporate knowledge sharing prospects* Related Management Tools: Knowledge Codification, Registering, and Storage Networking Assigning Knowledge Exploration Responsibilities Institutionalizing Knowledge Sharing Intermediaries Implementing Internal Benchmarking Procedures	Unilever's Management Tools: A strong informal network; Liaison members (e.g., category members, process leaders,information managers); Information Centers; Lotus Notes conferences; Workshops/Seminars/Task Forces; Registering of Best Practice (e.g., brand manuals, benchmark studies). General Comment: Although KS awareness system is quite advanced and well developed, a major part of the organization is not appropriately "connected". Moreover, those connected are threatened by an information overload.
P2: Knowledge Sharing Persuasion System *The initiation of an intracorporate knowledge sharing project is more likely to occur when there is a management system encouraging employees' interest to participate in the exploitation of intracorporate knowledge sharing prospects* Related Management Tools: Financial Measures and Reward Commitment and Formal Statements Top Management Organizing for Knowledge Interdependencies Institutionalizing Knowledge Champions Corporate Culture Activating a Social Pressure	Unilever's Management Tools: Management of Dispersed Innovation Projects (e.g. Innovation Funnel); Concentration of Development Resources (e.g., Innovation Centers, Centers of Excellence); Powerful Coordinations; Statements of Top Managers; Threat to become socially excluded; Issue in individual performance appraisals. General Comment: Although explicit rewards are lacking and a larger incentive exist to explore than exploit, Unilever's KS Persuasion System is quite strong and could be strengthened if Unilever succeeds in making the locus of decision power more clear.
P3: KS Complexity Reduction System *The successful effectuation of an intracorporate knowledge transfer effort is more likely when there is a management system reducing the complexity of intracorporate knowledge sharing* Related Management Tools: Knowledge Abstraction & Codification; Increasing User Involvement & Triability; Establishing a Corporate-Wide Language; Arranging Regular Management Meetings; Dominant Corporate Culture; Financial Measures and Rewards, Commitment and Formal Statements Top Management, Organizing for Knowledge Interdependencies, Institutionalizing Knowledge Champions; Corporate Culture Activating a Social Pressure to Share.	Unilever's Management Tools: Standardization of "language"; Harmonization of systems; Knowledge abstraction (e.g.,technical manuals, category business models); Personnel policy ("creating the international manager"); Corporate management courses, regular international management meetings; Corporate Culture creates corporate identity. General Comment: Although much diversity between the companies still exists due to the unit independence in the past, some deliberate actions have significantly reduced the complexity of KS efforts on average. Moreover, the level of trust between Unilever managers is quite distinctive and could be the basis on which valuable intracorporate knowledge sharing efforts can be built.
P4: Knowledge Sharing Media System *The successful effectuation of an intracorporate knowledge transfer effort is more likely to occur when there is a management system extending the possibilities to tune the richness of the transfer medium to the complexity of the intracorporate knowledge sharing situation.* Related Management Tools: Knowledge Transfer Skill Development Advanced Communication Technologies Expatriation Strategy	Unilever's Management Tools: New communication channels (e.g., E-mail, Lotus Notes, Videoconferencing, Desk-Top Computing); deliberate strategy to develop intercultural skills; Expatriation (although Unilever wants to reduce the number of expatriates). General Comment: Although major investments are done in the implementation of new communication channels, a electronic sharing community does not exist yet and could not be typified as a substitute for the strong informal information relationships.

Exhibit 10.1: Confrontation between Theoretical and Empirical Research.

Canon Europe N.V.	**ITT World Directories Inc.**
Canon Europe's Management Tools: Liaison Members; Dedicated Taskforces; Regular Management Meetings with an emphasis on exchanging knowledge; Workshops & Seminars; Various Newsletters. General Comment: Although some tools exist for front-line managers to identify where interesting knowledge items reside in the European organization, the view of Canon's top management is that all knowledge sharing initiatives should be coordinated by the European headquarters.	ITT WD's Management Tools: Liaison Members; General Management Meetings; IT Competence Centre (e.g., Publitec). General Comment: Only a very limited number of management tools regarding a KS Awareness System could be detected. As a consequence, many awareness barriers are still significantly obstructing the detection of intracorporate knowledge sharing initiatives within ITT WD.
Canon Europe's Management Tools: Some knowledge exploration tasks are assigned to taskforces; Obligation to report on market developments; Coordinators detect and inform about opportunities to share particular knowledge items. General Comment: Independent history of the companies has resulted in a resistance to corporate interference and headquarters is not willing and does not really perceive the need to persuade their companies to share. No monetary rewards exist or are intended to be implemented.	ITT WD's Management Tools: None General Comment: Operating units are totally self-sufficient with respect to their knowledge needs. Advancing "internal competitors" could weaken your own position in relation the corporate headquarters. The Not-Invented-Here syndrome is more than prevalent. In corporate management's attempt to tear companies apart to be able to weed out low-profit activities and "squeez" the most out of the highly profitable ones, cooperative relationships were demotivated.
Canon Europe's Management Tools: Product-embodied exportation of Canon's knowledge; Corporate Management Courses, Seminars, and Workshops; Japanese occupy key nodes in European information network; Regular Management Meetings. General Comment: Companies strongly differ in terms of their conception of the business, definition of their processes, and internal "language". Knowledge is not codified and no strong corporate identity exists yet. The Japanese are a separate cadre of managers in the European organization between whom a high level of trust exist.	ITT WD's Management Tools: None General Comment: An intracorporate knowledge sharing intitiative is rarely undertaken. Once initiated, however, numerous deterrents complicate the successful effectuation. Knowledge items are developed and adapted without any concern for its transferability. The environments within which the particular knowledge items are developed differ strongly in terms of the process definition, data-structures, and applied support systems. Moreover, a strong feeling of distrust resides deeply in the organization.
Canon Europe's Management Tools: Expatriation of Japanese; E-mail and Videoconferencing application for the communication with Canon Inc.; Intercultural skills are gradually developed during international management meetings. General Comment: Resources and skills are available to facilitate a limited number of communication lines which are perceived as important by Canon's top management (e.g., Canon Inc. - Canon Europe N.V.). Latent communication lines which reside unstructured lower down the hierarchy, however, lack these resources and need to exploit conventional communication tools (e.g. fax, telephone, visits).	ITT WD's Management Tools: A selected, but very small group of expatriates. General Comment: No investments are done by ITT WD in the development of an advanced communication system linking employees throughout the organization and enabling the smooth and flexible exchange of information. Moreover, transfer skills are limited due to the lack of experience with international cooperative projects and the lack of management development efforts. Employees are in general not expatriated in the aim to leverage their particular skills.

Exhibit 10.1: Confrontation between Theoretical and Empirical Research (Continued).

created to stimulate and facilitate cooperative efforts. Regarding this organizational trend, however, the findings within Unilever and ITT World Directories are ambiguous. Although highly successful in particular situations, the empirical research indicates that these "service centers" should be implemented selectively based on the prevailing demands for integration and local adaptation. In situations where demands for local adaptation are too strong or much stronger than the demands for integration, differentiation arguments for local development work should conquer because market knowledge is experimental of nature, the product of the confrontation with all kinds of market signals, and hence difficult to codify and communicate. Moreover, the development centers should be equipped with a significant degree of decision power and must be able to rely on the operating companies for input and feedback. If the demands for local adaptation are too strong in a particular area or if the "adopters" are unwilling to contribute to, cooperate in sake of, or accept the provided solutions, firms must find other ways to manage the intracorporate knowledge sharing process.

Finally, one of the most important empirical findings of the research project is that intracorporate knowledge sharing and conversation management go hand in hand. As Von Krogh and Roos (1996: 218) state: "Every company has its own unique set of concepts and phrases and usage of concepts and phrases, as well as potential for creating new concepts and phrases and new usage of them." Unilever, Canon Europe NV, and ITT World Directories, Inc. were all confronted with major difficulties to share knowledge due to the prevailing differences in mother-tongue, concepts, phrases, process definitions, and data structures. Employees constantly create new language and new meaning ensuing that concepts and phrases from one company are, in principle, not translatable into the culture of another organization (Von Krogh and Roos, 1996). If not managed carefully, each and every subsidiary within a corporation develops and institutionalizes its own "language" obstructing and complicating conversations on a cross-subsidiary basis. The more time and resources spent by corporate management on developing and giving meaning to concepts and phrases, the "richer" the corporate context will be for stimulating and facilitating intracorporate knowledge sharing. On the one hand, a thorough dialogue can turn awareness barriers down and stimulate the initiation of intracorporate knowledge sharing efforts. On the other hand, a well-managed corporate language could smooth the effectuation of knowledge transfer efforts by taking away very important and hindering complexity barriers. Without careful attention regarding the prevailing definitions and concepts, front-line managers will have major difficulties to onset intracorporate knowledge sharing efforts and hence exploit the firm's valuable but scattered knowledge resources.

10.3 SOME CRITICAL NOTES AND SUGGESTIONS FOR FURTHER RESEARCH

This thesis will be completed with an elaboration on some critical notes regarding the research project *"Managing Intracorporate Knowledge Sharing"* and an enumeration of some suggestions for further research. While being convinced of the relevance for both practising

managers and scientists, a few critical notes should put this thesis in its proper context. One of these general points of commentary, for example, is the lack of focus in this "all-embracing" account on managing intracorporate knowledge sharing. Instead of elaborating on one particular barrier or management system, a general account was written on managing intracorporate knowledge sharing from the viewpoint of a firm's top management. Although agreeing on this drawback, the author deliberately accepted the weaknesses of such an approach, namely the inability to come up with "hard proof" to validate or falsify some theoretically deduced statements, in advance of an "helicopter view" over the managerial issues surrounding intracorporate knowledge sharing. In the attempt to contribute to this almost uncharted territory in the management literature and accomplish some progress, this study captured as much of the complexity involved in actual managing intracorporate knowledge sharing by encompassing many of the relevant variables and integrate them in a generic framework.

Another reasonable comment on the underlying thesis is that it is an institutional account which stresses the importance of a planned, structured, controlled, and measured approach to intracorporate knowledge sharing comparable with the techno-analytic learning style of DiBella, Nevis, and Gould (1996). Knowledge processes and knowledge management are often conceptualized as creative, unstructured, and self-organizing activities in an organization. The self-organizing paradigm, as introduced by Nonaka (1988), is viewed as a process of self-organization through chaos or fluctuation and is characterized by instability, creativity, spontaneity, and unstructured information creation. Moreover, the individual has a great deal of freedom and is allowed to "stand on its own two feet." Notwithstanding the importance of creative and spontaneous knowledge exploration activities for the well-being of a firm's innovative capacity, we wanted to emphasize in this study the need to complement this "laissez faire" style of knowledge management with a disciplined approach to exploit and transform good ideas in a productive way . The challenge is, as Graham and Pizzo (1996: 338) argue, "to balance organizational creativity and flexibility with the disciplines that turn creative pursuits into tangible business advantage." This thesis contributes to the latter task and should be complemented in an organizational setting by less bureaucracy and more informal communication promoting the spontaneity, experimentation, and freedom of expression that are the lifeblood of innovation.

Related to the previous comment, we could question the claim that a firm's top management should strive for the total elimination of the prevailing barriers to intracorporate knowledge sharing. As one Unilever manager stated: "Although we aim at reducing the redundancy in knowledge activities, duplication can be of value in certain cases. By allowing multiple projects to proceed with the investigation of the same problem or issue, one can select the best solution at the end and the pooling together of different sources of know-how and experience brings in diversity in our knowledge base." Duplication in development activities enables firms to take the best of all available solutions and cross-fertilize the existing know-how on shared issues. By taking away all the deterrents obstructing and hindering the initiation and

effectuation of intracorporate knowledge sharing efforts, this kind of redundancy is strongly reduced (Nonaka and Takeuchi, 1995). A firm should try to detect the appropriate "height" of the awareness, interest, complexity, and media barriers to be able to exploit the organization's scattered knowledge resources while not harming its creativity and innovative power. This thesis does not point out the most suitable level for the prevailing barriers in an organization. Instead, it aims at clarifying the strategic context of managing intracorporate knowledge sharing, the possible deterrents regarding this organizational process, and possible ways of reducing them.

A fourth comment on this research project could be that it overemphasizes the need and possibilities of integration in an organization compared to differentiation. Although we tend to present the forces of differentiation and integration as complementary towards each other (e.g., Bartlett and Ghoshal, 1987; Handy, 1992), there is a tendency for integration, especially in combination with the word "global," to be understood as a more progressive device than differentiation (Forsgren, 1992). There is an apparent risk that this tendency will lead to a neglect of the costs of and forces against integration. As March and Simon (1958) argue, the division of labor and hence the differentiation of subgoals is reinforced by various cognitive mechanisms, such as individuals' tendency to selective perception, group pressure toward conformity in judgement, and selective exposure to information about the environment of those belonging to different parts of the organization. These differences in orientation are inherent to large corporations (Lawrence and Lorsch, 1967) and need to be acknowledged. Consequently, we have to be careful not to overestimate headquarters' task to design structure and systems in such a way that a beneficial integration is created. At the same time, we have to be careful not to underestimate the costs related to integration.

Finally, the Canon case shows that not all enterprises can be typified yet as decentralized network structures within which the only exploitation challenge is the leverage of scattered knowledge resources. The Canon case reveals that other knowledge leverage variants than the "globally-leveraged-local-innovations" still exist. Companies need to recognize, as Bartlett and Ghoshal (1990) argue, that other ways exist to develop and leverage innovative products and processes (e.g., Center-for-Global innovations, Local-for-Local innovations, Locally-leveraged innovations, Globally-linked innovations). The challenge is not promoting one of these leveraging processes, but to find a balance between the management systems which guarantee effectiveness of central innovations and the efficiency of local innovations. This study contributes particularly to the latter task by emphasizing and analyzing the "stimulators" and "facilitators" regarding the transfer and exchange of knowledge resources between the internationally dispersed companies of a multinational enterprise.

Concluding, we want to stress that this general account on managing intracorporate knowledge sharing needs to be complemented with more focused research projects. Besides acknowledging the need for future study on issues as the particular characteristics of knowledge, the role of knowledge in the value-creating process of a firm, and the contribution of the knowledge concept to the development of a new theory of the firm, we have formulated

some suggestions for future research regarding the barriers to share knowledge and the possible ways to manage this process. With respect to the barriers to intracorporate knowledge sharing, the following questions could be interesting to investigate in future research projects:

(1) How to rank the barriers to intracorporate knowledge sharing in their obstructing and hindering influence? Is there an optimal level for the barriers to intracorporate knowledge sharing and what is the relationship between different groups of barriers? Is it necessary to fully remove the barriers or is it more preferable to keep them at a certain height? Is there a particular and preferred order in which barriers to intracorporate knowledge sharing should be reduced or eliminated?

(2) What kind of contingencies exist regarding the obstructing and hindering influence of particular barriers to intracorporate knowledge sharing? What kind of barriers could be expected in particular organizational settings, industries, or geographic regions?

(3) How to understand the barriers if we conceptualize intracorporate knowledge sharing as a continuous process? What is the influence of past successes and failures on the initiation and effectuation of intracorporate knowledge sharing efforts?

Management systems could be operationalized by implementing one or more of its management tools. Regarding these management tools, we formulated the following research questions to indicate some suggestions for future research:

(1) How to inform employees throughout the firm on prevailing knowledge items without creating an "information overload"? How to customize the demand for information to the particular needs of the front-line manager?

(2) How to manage Strategic Centers of Excellence, Competence Centers, and Innovation Centers in the multinational enterprises and what kind of organizational context is needed to let them succeed?

(3) What is the added value of the advanced information and communication tools for managing intracorporate knowledge sharing and how should they be combined with other management tools?

(4) What kind of incentive and performance measurement systems, both objective and subjective, can be created to increase the motivation and hence the appropriate "emotional context" to share internally available knowledge items?

Although this list of possible research questions is certainly not all inclusive, it definitely indicates that still a lot has to be investigated in this area before we are able to fully understand and control the complexities involved in managing intracorporate knowledge sharing. In this thesis, however, an attempt was made to increase the general understanding regarding intracorporate knowledge sharing and to provide both scientists and practitioners with an instrument to structure their research, discussions, and action plans regarding the leverage of a firm's knowledge reservoir.

References

Aaker, D.A., Managing Assets and Skills: The Key to a Sustainable Competitive Advantage, *California Management Review*, Winter 1989, pp. 91-106.

Abrahamson, E., Managerial Fads and Fashions: The Diffusion and Rejection of Innovations, *Academy of Management Review*, 16(3), 1991, pp. 586-612.

Adler, P.S., Shared Learning, *Management Science*, Vol. 36, August 1990, pp. 938-967.

Aharoni, Y., Education and Technology Transfer: Recipient Point of View. In: T. Agmon and M.A. von Glinow (Eds.), *Technology Transfer in International Business,* Oxford: Oxford University Press, 1991, pp. 79-102.

Aldrich, H.E., *Organizations and Environments*, Englewood Cliffs, NJ: Prentice-Hall, 1979.

Allen, T.J. and S. Cohen, Information Flow in R&D, *Administrative Science Quarterly,* Vol. 14, 1969, pp. 12 -19.

Allen, T.J., *Managing the Flow of Technology,* Cambridge, Ma.: MIT Press, 1977.

Allen, T.J. and M. Tushman and D. Lee, Technology Transfer as a function of position on research, development, and technical service continuum, *Academy of Management Journal*, Vol. 22, 1979, pp. 694-708

Almeida, P., Knowledge Sourcing by Foreign Multinationals: Patent Citation Analysis in the US Semiconductor Industry, *Strategic Management Journal*, Vol. 17, 1996, pp. 155-165.

Alter, C. and J. Hage, *Organizations Working Together*, Newbury Park, Ca: Sage, 1993.

Altier, W.J., Task Forces - An Effective Management Tool, *Sloan Management Review*, Vol. 27, Spring 1986, pp. 69-76.

Ameden, R.W., Executive Commentary on Exchanging Best Practices through Computer-aided Systems, *Academy of Management Executive*, Vol. 10, 1996, pp. 18.

Amit, R. and P.J. Schoemaker, Strategic Assets and Organizational Rent, *Strategic Management Journal*, Vol. 14, 1993, pp. 33-46.

Andrews, K.R., *The Concept of Corporate Strategy*, Homewood, Ill.: Dow Jones-Irwin, 1971.

Ansoff, H.I., *Corporate Strategy: An Analytical Approach to Business Policy for Growth and Expansion,* New York: McGraw-Hill, 1965.

Aoki, M., Toward an Economic Model of the Japanese Firm, *Journal of Economic Literature,* XXVIII, March 1990, pp. 1-27.

Argote, L., S.L. Beckman, and D. Epple, The Persistence and Transfer of Learning in Industrial Settings, *Management Science,* Vol. 36, 1990, pp. 140-154.

Argyris, C., Double Loop Learning in Organizations, *Harvard Business Review*, September - October 1977, pp. 115-125

Argyris, C., *Overcoming Organizational Defenses: Facilitating Organizational Learning,* Boston, Ma.: Prentice Hall, 1990.

Argyris, C. and D.A. Schon, *Organizational Learning: A Theory of Action Perspective,* Reading, Ma.: Addison-Wesley, 1978.

Arrow, K.J., Classificatory Notes on the Production and Transmission of Technological Knowledge. In: D.J. Jeremy, *International Technology Transfer,* Aldershot: Edward Elgar Publishing, 1991, pp. 98-104.

Ashforth, B.E. and A.M. Saks, Socialization Tactics: Longitudinal Effects on Newcomer Adjustment, *Academy of Management Journal,* Vol. 39, 1996, pp. 149-178.

Attewell, P., Technology Diffusion and Organizational Learning, *Organizational Science,* Vol. 3, 1992, pp. 1-19.

Backer, T.E., Knowledge Utilization - The Third Wave, *Knowledge: Creation, Diffusion, Utilization,* Vol. 12, March 1991, pp. 225-240.

Bacharach, S.B., Organizational Theories: Some Criteria for Evaluation, *Academy of Management Review,* Vol 14, October 1989, pp. 496-515.

Badaracco, J., *The Knowledge Link: How Firms Compete Through Strategic Alliances,* Boston, Ma.: Harvard Business School, 1991.

Baden-Fuller, C. and M. Pitt, The Nature of Innovating Strategic Management. In: C. Baden-Fuller and M. Pitt (Eds.), *Strategic Innovation*, London: Routledge, 1996, pp. 3-42.

Baden-Fuller, C. and J.M. Stopford, *Rejuvenating the Mature Business: The Competitive Challenge,* Boston, Ma.: Harvard Business School Press, 1994.

Bain, J.S., *Industrial Organization,* New York: John Wiley, 1968.

Barabba, V.P. and G. Zaltman, *Hearing the Voice of the Market: Competitive Advantage through Creative Use of Market Information,* Boston, Ma.: Harvard Business School Press, 1991.

Baranson, J. and R. Roark, Trends in North-South Transfer of High Technology. In: N. Rosenberg and C. Frichtak (Eds.), *International Technology Transfer: Concepts, Measures and Comparisons,* New York: Preager, 1985, pp. 24-42.

Barkema, H.G., J.H.J. Bell, and J.M. Pennings, Foreign Entry, Cultural Barriers, and Learning, *Strategic Management Journal,* Vol. 17, 1996, pp. 151-166.

Barnard, C.I., *The Functions of the Executive,* Cambridge, Ma.: Harvard University Press, 1938.

Barney, J.B., Types of Competition and the Theory of Strategy: Toward an Integrative Framework, *Academy of Management Review,* Vol 11, October 1986a, pp. 1231-1241.

Barney, J.B., Strategic Factor Markets: Expectations, Luck, and Business Strategy, *Management Science*, Vol. 32, 1986b, pp. 1231-1241.

Barney, J.B., Firm Resources and Sustained Competitive Advantage, *Journal of Management*, Vol. 17, 1991, pp. 99-120.

Bartlett, C.A., Building and Managing the Transnational: The New Organizational Challenge. In: M.E. Porter (Ed.), *Competition in Global Industries,* Boston, Ma.: Harvard Business School Press, 1986, pp. 367-401.

Bartlett, C.A, and S. Ghoshal, Managing across Borders: New Organizational Responses, *Sloan Management Review*, Vol. 28, Fall 1987, pp. 43-52.

Bartlett, C.A. and S. Ghoshal, *Managing across Borders: The Transnational Solution*, Boston, Ma.: Harvard Business School Press, 1989.

Bartlett, C.A. and S. Ghoshal, Manging Innovation in the Transnational Corporation. In: C.A. Bartlett, Y. Doz and G. Hedlund (Eds.), *Managing the Global Firm*, London: Routledge, 1990, pp. 215-254.

Bartlett, C.A. and S. Ghoshal, Beyond the M-Form: towards a managerial theory of the firm, *Strategic Management Journal*, Vol. 14, Winter Special Issue, 1993, pp. 23-46.

Bartlett, C.A. and S. Ghoshal, Changing the Role of Top Management: Beyond Strategy to Purpose, *Harvard Business Review*, November-December 1994, pp. 79-88.

Bartlett, C.A. and S. Ghoshal, Changing the Role of Top Management: Beyond Systems to People, *Harvard Business Review*, May-June 1995, pp. 132-142.

Beatty, C.A. and J.R.M. Gordon, Barriers to the Implementation of CAD/CAM Systems, *Management Review*, Vol. 29, 1988, pp. 25-33.

Becker, H.S., Culture: A Sociological View, *Yale Review,* Summer 1982, pp. 513-527.

Berlo, D., *The Process of Communication,* New York: Holt, Rinehart & Winston, 1960.

Berry, M.M.J. and J.H. Taggart, Managing Technology and Innovation: A Review, *R&D Management*, Vol. 24, 1994, pp. 341-353.

Bettis, R.A., Performance Differences in Related and Unrelated Diversified Firms, *Strategic Management Journal*, Vol. 3, 1981, pp. 379-393.

Bidault, F. and W.A. Fischer, Technology Transactions: Networks over Markets, *R&D Management,* Vol. 24, 1994, pp. 373-386.

Black, J.S. and M. Mendenhall, A Practical but Theory-Based Framework for Selecting Cross-cultural Training Methods, *Human Resource Management,* Vol. 28, 1989, pp. 511 - 539.

Blackler, F., Knowledge, Knowledge Work, and Organizations: An Overview and Interpretation, *Organization Studies,* Vol. 16, 1995, pp. 1021-1046.

Bogan, C.E. and M.J. English, *Benchmarking for Best Practices - Winning Through Innovative Adaptation,* New York: McGraw-Hill, Inc., 1994.

Bohn, R.E., Measuring and Managing Technological Knowledge, *Sloan Management Review,* Vol. 35, Fall 1994, pp.61-73.

Boisot, M., Convergence Revisited: The Codification and Diffusion of Knowledge in a British and a Japanese Firm, *Journal of Management Studies,* Vol. 1, 1983, pp. 159-190.

Bonora, E.A. and O. Revang, A Framework for Analysing the Storage and Protection of Knowledge in Organizations. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes,* Cambridge, Ma.: Blackwell, 1993, pp. 190-213.

Boone, P.F. and F.A.J. van den Bosch, Discerning a Key Characteristic of a European Style of Management: Managing the Tension between Integration Opportunities and the Constraining Diversity in Europe, *International Studies of Management & Organization,* Vol. 26, 1996, pp. 109-127.

Bourgeois, L.J., and K. Eisenhardt, Strategic Decision Processes in High Velocity Environments: Four Cases in the Microcomputer Industry, *Management Science,* Vol. 34, 1988, pp. 816-835.

Bowen, H.K., K.B. Clark, C.A. Holloway, S.C. Wheelwright, *The Perpetual Enterprise Machine - Seven Keys to Corporate Renewal Through Successful Product and Process Development,* New York, NY: Oxford University Press, 1994.

Bower, J.L., *Managing the Resource Allocation Process: A Study of Corporate Planning and Investment,* Homewood Ill.: Irwin, 1970.

Boynton, A.C., Achieving Dynamic Stability through Information Technology, *California Management Review,* Winter 1993, pp. 58-77.

Boynton, A.C. and B. Victor, Beyond Flexibility: Building and Managing the Dynamically Stable Organization, *California Management Review,* Fall 1991, pp. 53-66.

Bright, J.R., *Research, Development and Technological Innovation,* Homewood, Ill.: Richard D. Irwin, Inc., 1964.

Buckley, P.J., Problems and Developments in the Core Theory of International Business, *Journal of International Business,* Vol. 21, 1991, pp. 657-665.

Buckley, P.J. and M.C. Casson, *The Future of the Multinational Enterprise,* New York, NY: Holmes & Meier Publishers, 1976.

Burgelman, R.A., A Process Model of Internal Corporate Venturing in the Diversified Major Firm, *Administrative Science Quarterly,* Vol. 28, 1983, pp. 223-244.

Burgelman, R.A., *Strategic Management of Technology and Innovation,* Homewood, Ill.: Irwin, 1988.

Burns, T. and G.M. Stalker, *The Management of Innovation,* London: Tavistock Publications, 1961.

Buzzell, R.D. and B.T. Gale, *The PIMS principles: Linking Strategy to Performance,* New York: Free Press, 1987.

Calori, R., and P. de Woot, *A European Management Model - Beyond Diversity,* London: Prentice Hall, 1994.

Camillus, J.C., Crafting the Competitive Corporation - Management Systems for Future Organizations. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes,* Cambridge, Ma.: Blackwell, 1993, pp. 313-328.

Camp, R.C., *Benchmarking - The Search for Industry Best Practices that Lead to Superior Performance*, Milwaukee, Wis: ASQC Quality Press, 1989.

Camp, R.C., *Business Process Benchmarking: Finding and Implementing Best Practices*, Milwaukee, Wis: ASQC Quality Press, 1995.

Campbell, A. and S. Yeung, Creating a Sense of Mission, *Long Range Planning*, August 1991, pp. 10-20.

Campbell, A., and K. Luchs, *Strategic Synergy,* London: Butterworth Heinemann, 1992.

Campbell, A., The Value of the Parent Company, *California Management Review*, Vol. 38, 1995, pp. 79 - 97.

Casson, M.C. and S.J. Nicholas, *Economics of Trust: Explaining Differences in Organizational Structure Between United States and Japan,* University of Reading Discussion Papers in Economics, 1989.

Caves, R.E., *Multinational Enterprise and Economic Analysis,* Cambridge, UK: Cambridge University Press, 1982.

Chandler, A.D., *Strategy and Structure - Chapters in the History of the Industrial Enterprise,* Cambridge, Ma.: MIT Press, 1962.

Chandler, A.D., *Scale and Scope - The Dynamics of Industrial Capitalism,* Cambridge, Ma.: Harvard University Press, 1990.

Chatterjee, S. and B. Wernerfelt, The Link Between Resources and Type of Diversification: Theory and Evidence, *Strategic Management Journal,* Vol. 12, 1991, pp. 33-48.

Chisholm, D., *Coordination without Hierarchy - Informal Structures in Multiorganizational Systems,* Berkeley: University of California Press, 1989.

Clark, K.B. and S.C. Wheelwright, *Managing New Product and Process Development - Text and Cases,* New York, NY: Macmillan, 1993.

Coase, R.H., The Nature of the Firm, *Economica*, Vol. 4, November 1937, pp. 386-405.

Coffee, J.C., Shareholders versus Managers: The Strain in the Corporate Web. In: J.C. Coffee, L. Lowenstein and S. Rose-Ackerman (Eds.), *Knights, Raiders and Targets - The Impact of the Hostile Takeover,* New York, NY: Oxford University Press, 1988, pp. 77-134.

Cohen, W.M., and D.A. Levinthal, Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly,* Vol. 35, 1990, pp. 128-152.

Collins, H., The Structure of Knowledge, *Social Research,* Vol. 60, 1993, pp. 96-116.

Conner, K.R., A Historical Comparison of Resource-Based Theory and Five Schools of Thought Within Industrial Organization Economics: Do We Have a New Theory of the Firm, *Journal of Management,* Vol. 17, 1991, pp. 121-154.

Conner, K.R., and C.K. Prahalad, A Resource-based Theory of the Firm: Knowledge Versus Opportunism, *Organization Science*, Vol. 7, 1996, pp. 477-501.

Contractor, F.J., The Profitability of Technology Licensing by United States Multinationals: A Framework for Analysis and an Empirical Study, *Journal of International Business Studies,* 1980, pp. 40-63.

Creighton, J.W., J.A. Jolly, and T.A. Buckles, The Manager's Role in Technology Transfer, *Journal of Technology Transfer,* Vol. 10, 1985, pp. 65-81.

Culnan, M.J., Environmental Scanning: The Effects of Task Complexity and Source Accessibility on Information Gathering Behavior, *Decision Sciences*, Vol. 14, 1983, pp. 194-206.

Cusumano, M.A., and D. Elenkov, Linking International Technology Transfer with Strategy and Management: A Literature Commentary, *Research Policy*, Vol. 23, 1994, pp. 195-215.

Cyert, R. M. and J. G March, *A Behavioural Theory of the Firm*, Englewood Cliffs, NJ: Prentice Hall, 1963.

D'Aveni, R.A., *Hypercompetition: Managing the Dynamics of Strategic Maneuvering*, New York: The Free Press, 1994.

Daft, R.L., and G.P. Huber, How Organizations Learn: A Communication Approach, *Research in the Sociology of Organizations,* Vol. 5, 1987, pp. 1-36.

Daft, R.L., and R.H. Lengel, Information Richness: A New Approach to Manager Information Processing and Organization Design. In: B. Staw and L.L. Cummings (Eds.), *Research in Organizational Behavior*, Greenwich, Cn.: JAI Press, 1984.

Daft, R.L. and R.H. Lengel, Organizational Information Requirements - Media Richness and Structural Design, *Management Science*, Vol. 32, 1986, pp. 554-571.

Daft, R.L., R.H. Lengel, and L.K. Trevino, Message Equivocality, Media Selection, and Manager Performance: Implications for Information Systems, *MIS Quarterly*, Vol. 11, 1987, pp. 355-368.

Daft, R.L., and N.B. Macintosh, A Tentative Exploration into the Amount and Equivocality of Information Processing in Organizational Units, *Administrative Science Quarterly*, Vol. 26, 1981, pp. 207-224.

Daft, R.L., and J. Wiginton, Language and Organizations, *Academy of Management Review*, Vol. 4, 1979, pp. 179-191.

Damanpour, F., The Adoption of Technological, Administrative, and Ancillary innovations: Impact of Organizational Factors, *Journal of Management,* Vol. 13, 1987, pp. 675-688.

Damanpour, F., Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators, *Academy of Management Journal*, Vol. 34, 1991, pp. 555-590.

Davenport, T.H., *Process Innovation - Reengineering Work through Information Technology*, Boston, Ma.: Harvard Business School Press, 1993.

Davidson, W.H., and D.G. McFetridge, International Technology Transactions and the Theory of the Firm, *Journal of Industrial Economics*, Vol. 32, 1984, pp. 253-264.

Davis, R., Knowledge-Based Systems, *Science,* Vol. 231, 1986, pp. 957-963.

De Geus, A., Planning as Learning, *Harvard Business Review*, March-April 1988, pp. 70-74.

De Leeuw, A.C.J., *Bedrijfskundige Methodologie: Management van Onderzoek*, Assen/Maastricht: Van Gorcum, 1993.

De Man, A.P., *Organizing for Competitiveness,* Rotterdam School of Management PhD Series in General Management nr. 17, Delft: Eburon, 1996.

De Meyer, A.C.L., The Flow of Technological Innovation in an R&D Department, *Research Policy*, Vol. 14, 1985, pp. 315-328.

De Meyer, A.C.L., Tech Talk, *Sloan Management Review*, Vol. 32, Spring 1991, pp. 49-58.

Devine, M.D., T.E. James, and T.I. Adams, Government Supported Industry-University Research Centres: Issues for successful technology transfer, *Journal of of Technology Transfer*, Vol. 12, 1987, pp. 27-37.

Dewar, R.D. and J.E. Dutton, The Adoption of Radical and Incremental Innovations: An Empirical Analysis, *Management Science*, Vol. 32, 1986, pp. 1422-1433.

DiBella, A.J., E.C. Nevis, and J.M. Gould, Organizational Learning Style as a Core Capability. In: B. Moingeon and A. Edmondson (Eds.), *Organizational Learning and Competitive Advantage*, London: Sage, 1996, pp. 39-55.

Dickson, K., How Informal Can You Be? Trust and reciprocity within Co-operative and Collaborative Relationships, *International Journal of Technology Management,* Vol. 11, 1996, pp. 129-139.

Dierickx, I., and K. Cool, Asset Stock Accumulation and Sustainability of Competitive Advantage, *Management Science*, Vo. 35, December 1989, pp. 1504-1511.

Downs, G.W., and L.B. Mohr, Conceptual issues in the study of innovations, *Administrative Science Quarterly*, Vol. 21, 1976, pp. 700-713.

Doz, Y., *Strategic Management in Multinational Companies*, Oxford: Pergamon Press, 1986.

Doz, Y., Competence and Strategy. In: E. Punset and G. Sweeney, *Information Resources and Corporate Growth*, London: Pinter Publishers, 1989, pp. 47-55.

Doz, Y., C. Bartlett, and C.K. Prahalad, Global Competitive Pressure vs. Host Country Demand: Managing Tensions in Multinational Corporations, *California Management Review*, Vol. 23, 1981, pp. 63-74.

Doz, Y., and C.K. Prahalad, Headquarters Influence and Strategic Control in MNCs, *Sloan Management Review*, Vol. 23, 1981, pp. 15-29.

Doz, Y., and C.K. Prahalad, Patterns of Strategic Control in Multinational Corporations, *Journal of International Business Studies*, Vol. 15, Fall 1984, pp. 55-74.

Doz, Y., and C.K. Prahalad, Controlled Variety: A Challenge for Human Resource Management in the MNE, *Human Resource Management,* Vol. 25, Spring 1986, pp. 55-71.

Doz, Y., and C.K. Prahalad, A Process Model of Strategic Redirection in Large Complex Firms: The Case of Multinational Corporations. In A. Pettigrew (Ed.), *The Management of Strategic Change*, Oxford: Basil Blackwell, 1987, pp. 63-83.

Doz, Y., and C.K. Prahalad, Managing DMNCs: A search for a new paradigm, *Strategic Management Journal*, Special Issue, Vol. 12, 1991, pp. 145-164.

Drucker, P.F., According to Peter Drucker, *Forbes ASAP*, March 29, 1993, pp. 90-95.

Dunning, J.H., Toward an Eclectic Theory of International Production: Some Empirical Tests, *Journal of International Business Studies,* Vol. 11, 1980, pp. 9-31.

Dunning, J.H., *International Production and the Multinational Enterprise,* London: Allan & Unwin, 1981.

Dunning , J.H., *Explaining International Production*, London: Unwin Hyman, 1988.

Dutton, J.E., and S.E. Jackson, Categorizing Strategic Issues: Links to Organizational Action, *Academy of Management Review*, Vol. 12, 1987, pp. 76-90.

Dyer, W.G., and A. L. Wilkins, Better Stories and Better Constructs to Generate Better Theory: a Rejoinder to Eisenhardt, *Academy of Management Review*, Vol. 16, 1991, pp. 613 - 619.

Earley, P.C., P. Wojnaroski, and W. Prest, Task Planning and Energy Expended: Exploration of How Goals Influence Performance, *Journal of Applied Psychology*, February 1987, pp. 107-114.

Egelhoff, W.G., Strategy and Structure in Multinational Corporations: An Information Processing Approach, *Administrative Science Quarterly*, Vol. 27, 1982, pp. 435-458.

Eisenhardt, K.M., Building Theories from Case-Study Research, *Academy of Management Review*, Vol. 14, 1989, pp. 532-550.

Eisenhardt, K.M., Better Stories and Better Constructs: The Case for Rigor and Comparative Logic, *Academy of Management Review*, Vol. 16, 1991, pp. 620-627.

Ettinger, A., Benchmarking Information and Learning Resources, *Business Information Review*, Vol. 12, 1995, pp. 33-41.

Ettlie, J.E. and A.H. Rubenstein, The Adoption Time Period for some Transportation Innovations, *Management Science*, Vol. 25, 1979, pp. 429-443.

Eveland, J.D., *Issues in Using the Concept of Adoption of Innovation*, Baltimore O(N), Paper presented at the American Society for Public Administration, 1979.

Fayol, H., *Administration Industrielle et Générale*, Paris: Dunod, 1916.

Fayol, H., *General and Industrial Management*, London: Pitman [translated from the original 'Administration Industrielle et Générale', 1916], 1949.

Feldman, J., and H.E. Kanter, Organizational Decision Making. In: J.G. March, *Handbook of Organizations*, Chicago: Rand McNally, 1965, pp. 614-649.

Fennell, M.L., Synergy, Influence, and Information in the Adoption of Administrative Innovation, *Academy of Management Journal,* Vol. 27, 1984, pp. 113-129.

Ferraro, G.P., The Need for Linguistic Proficiency in Global Business, *Business Horizons,* May-June 1996, pp. 39-46.

Fiol, C.M., and M.A. Lyles, Organizational Learning, *Academy of Management Review*, Vol. 10, 1985, pp. 803-813.

Fisher, J.G., *How to Improve Performance through Benchmarking*, London: Kogan Page, 1996.

Fiske, J., *Introduction to Communication Studies*, London - New York: Routledge, 1990.

Fleck, J., Informal Information Flow and the Nature of Expertise in Financial Services, *International Journal of Technology Management*, Vol. 11, 1996, pp. 104-128.

Forsgren, M., Managing the International Multi-centre Firm, *European Management Journal*, Vol. 8, 1990, pp. 261-267.

Foss, N.J., Knowledge-based Approaches to the Theory of the Firm: Some Critical Comments, *Organization Science*, Vol. 7, 1996, pp. 470-476.

Fouraker, L.E., and J. Stopford, Organization Structure and Multinational Strategy, *Administrative Science Quarterly*, Vol. 13, 1968, pp. 47-64.

Frame, J. Davidson, *International Business and Global Technology*, Lexington, Mass: Lexington Books, 1983.

Franko, L., *The European Multinationals,* New York: Harper, 1976.

French, R. and J. Bazalgette, From 'Learning Organization' to 'Teaching-Learning Organization'?, *Management Learning*, Vol. 27, 1996, pp. 113-128.

Fukuyama, F., *Trust - The Social Virtues and the Creation of Prosperity*, New York, NJ: The Free Press, 1995.

Galbraith, J.R., *Designing Complex Organizations*, Reading, Ma.: Addison Wesley, 1973.

Galbraith, J.R., *Organizational Design*, Reading, Ma.: Addison-Wesley, 1977.

Galbraith, C.S., Transferring Core Manufacturing Technologies in High Tech Firms, *California Management Review*, Vol. 32, 1990, pp. 56-70.

Galbraith, C.S., and N.W. Kay, Towards a Theory of Multinational Enterprise, *Journal of Economic Behaviour and Organization*, Vol. 19, 1986, pp. 3-19.

Gates, S.R. and W. Egelhoff, Centralization in Parent Headquarters-Subsidiary Relationships, *Journal of International Business Studies*, Vol. 17, 1986, pp. 71-92.

Gee, S., The Role of Technology Transfer in Innovation, *Research Management*, Vol. 17, 1974, pp. 31-36.

Gee, S., Factors Affecting the Innovation Time-Period, *Research Management*, Vol. 21, 1978, pp. 37-42.

Gee, S., *Technology Transfer, Innovation, and International Competitiveness*, New York: John Wiley, 1981.

Geneen, H., *Managing*, Garden City, NY: Doubleday, 1984.

Ghoshal, S., and M. Ackenhusen, Canon: Competing on Capabilities. In: B. de Wit and R. Meyer, *Strategy - Process, Content, Context*, St.Paul, Mn.: West Publishing Company, 1994.

Ghoshal, S., and C.A. Bartlett, Creation, Adoption, and Diffusion of Innovations by Subsidiaries of Multinational, *Journal of International Business Studies*, Vol. 19, Fall 1988, pp. 365-388.

Ghoshal, S. and C.A. Bartlett, The Multinational Corporation as an Interorganizational Network, *Academy of Management Review*, Vol. 15, 1990, pp. 603-625.

Ghoshal, S., and C.A. Bartlett, Linking Organizational Context and Managerial Action: The Dimensions of Quality of Management, *Strategic Management Journal*, Vol. 15, Summer Special Issue, 1994, pp. 91-112.

Ghoshal, S., and C.A Bartlett, Changing the Role of Top Management: Beyond Structure to Processes, *Harvard Business Review*, January-February 1995, pp. 86-87.

Ghoshal, S., and N. Nohria, Internal Differentiation within Multinational Corporations, *Strategic Management Journal*, Vol. 10, 1989, pp. 323-338.

Gibson, D.V., and R.W. Smilor, Key Variables in Technology Transfer: A Field-study based Empirical Analysis, *Journal of Engineering and Technology Management*, Vol. 8, 1991, pp. 287-312.

Glaser, E.M., Knowledge Transfer and Institutional Change, *Professional Psychology*, Vol. 4, 1973, pp. 434-444.

Glaser, E.M., H.H. Abelson, and K.N. Garrison, *Putting Knowledge to Use*, San Francisco, Ca.: Jossey-Bass, 1983.

Glaser, E.M., and J.B. Marks, Putting Research to Work, *Rehabilitation Record*, Vol. 7, 1966, pp. 6-10.

Glueck, W., *Business Policy: Strategy Formation and Management Action*, New York: McGraw-Hill, 1976.

Godkin, L., Problems and Practicalities of Technology Transfer: A Survey of the Literature, *International Journal of Technology Management*, Vol. 3, 1988, pp. 587 - 603.

Goodman, P.S., and E.D. Darr, Exchanging Best Practices through Computer-aided Systems, *Academy of Management Executive*, Vol. 10, 1996, pp. 7-19.

Goold, M., and A. Campbell, *Strategies and Styles - The Role of the Centre in Managing Diversified Corporations*, Cambridge, Mass.: Blackwell, 1987.

Goold, M., A. Campbell, and M. Alexander, *Corporate-level Strategy: Creating Value in the Multibusiness Company*, New York, NJ: Wiley, 1994.

Goold, M. and K. Luchs, Why Diversify? Four Decades of Management Thinking, *Academy of Management Executive*, August 1993, pp. 7-25.

Goold, M., and K.S. Luchs (Eds.), *Managing the Multibusiness Company: Strategic Issues for Diversified Groups*, London: Routledge, 1996.

Graham, A. and V. Pizzo, A Question of Balance: Case Studies in Strategic Knowledge Management, *European Management Journal*, Vol. 14, 1996, pp. 338-346.

Granstrand, O., and S. Sjölander, Managing Innovation in Multi-technology Corporations, *Research Policy*, Vol. 19, 1990, pp. 35-60.

Grant, R.M., The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation, *California Management Review*, Vol. 33, Spring 1991, pp. 114-135.

Grant, R.M., Prospering in Dynamically-competitive Environments: Organizing Capability as Knowledge Integration, *Organization Science*, Vol. 7, 1996a, pp. 375-387.

Grant, R.M., Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17, Winter Special Issue, 1996b, pp.106-122.

Grant, R.M. and C. Baden-Fuller, A Knowledge-Based Theory of Inter-Firm Collaboration, *Academy of Management Best Papers Proceedings*, 1995, pp. 17-21.

Gulati, R., Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances, *Academy of Management Journal*, Vol. 38, 1995.

Gupta, A.K., and V. Govindarajan, Resource Sharing among SBUs: Strategic Antecedents and Administrative Implications, *Academy of Management Journal*, Vol. 29, December 1986, pp. 695-714.

Gupta, A.K., and V. Govindarajan, Knowledge Flows and the Structure of Control within Multinational Corporations, *Academy of Management Review*, Vol. 16, 1991, pp. 768-792.

Hagström, P., *The Wired MNC - The Role of Information Systems for Structural Change in Complex Organizations*, Doctoral Dissertation, Stockholm School of Economics, 1991.

Hambrick, D.C., and P.A. Mason, Upper echelons: The Organizations as a Reflection of its Top Managers, *Academy of Management Review*, Vol. 9, 1984, pp. 195-206.

Hamel, G., Competition for Competence and Inter-Partner Learning within International Strategic Alliances, *Strategic Management Journal*, Vol. 12, Summer Special Issue, 1991, pp. 83-103.

Hamel, G., and A. Heene (Eds.), *Competence-Based Competition*, New York, NJ: John Wiley, 1994.

Hamel, G., and C.K. Prahalad, Strategy as Stretch and Leverage, *Harvard Business Review*, March-April 1993, pp. 75-84.

Handy, C., Balancing Corporate Power - A New Federalist Paper, *Harvard Business Review*, November/December 1992, pp. 59-72.

Harrigan, K. R., Strategies for Intrafirm Transfers and Outside Sourcing, *Academy of Management Journal*, Vol. 28, 1985, pp. 914-925.

Haspeslagh, P.C., and D.B. Jemison, *Managing Acquisitions: Creating Value through Corporate Renewal*, Ney York, NJ: The Free Press, 1991.

Haspeslagh, P.C., and D.B. Jemison, Industry Restructering, Adquisitions, and the Value Creation Process. In: K. Cool, D.J. Neven, and I. Walter (Eds.), *European Industrial Restructuring in the 1990s*, London: Macmillan, 1992, pp. 266-293.

Hax, A.C., Redefining the Concept of Strategy and the Strategy Formation Process, *Planning Review*, May/June 1990, pp. 34-40.

Hedlund , G., The Hypermodern MNC: A Heterarchy?, *Human Resource Management*, Spring 1986, pp. 9-35.

Hedlund, G., A Model of Knowledge Management and the N-Form Corporation, *Strategic Management Journal*, Vol. 15, Winter Special Issue, 1994, pp. 73-90.

Hedlund, G., and I. Nonaka, Models of Knowledge Management in the West and Japan. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes*, Cambridge, Ma.: Blackwell, 1993, pp. 117-144.

Hedlund , G., and D. Rolander, Action in Heterarchies: New Approaches to Managing the MNC. In: C.A. Bartlett, Y. Doz, and G. Hedlund, *Managing the Global Firm*, London: Routledge, 1990, pp. 15-46.

Heidegger, What is Called Learning? In: W. Torbert, *The Power of Balance: Transforming Self, Society and Scientific Inquiry*, Newbury Park, Ca.: Sage, 1991, pp. 83-106.

Henderson, B.D., *Henderson on Corporate Strategy*, Cambridge, Ma.: Abt Books, 1979.

Hiebeler, R.J., Benchmarking: Knowledge Management, *Strategy & Leadership*, Vol. 24, March/April 1996, pp. 22-29.

Hirschey, R.C., and R.E. Caves, Research and Transfer of Technology by Multinational Enterprises, *Oxford Bulletin of Economics and Statistics*, Vol. 43, 1981, pp. 115-130.

Hofer, C.W., and D. Schendel, *Strategy Formulation: Analytical Concepts*, New York, NJ: West Publishing, 1978.

Huber, G.P., A Theory of the Effects of Advanced Information Technologies on Organizational Design, Intelligence, and Decision Making, *Academy of Management Review*, Vol. 15, 1990, pp. 47-71.

Huber, G.P., Organizational Learning: The Contributing Processes and Literatures, *Organization Science*, Vol. 2, 1991, pp. 88-115.

Hymer, S.H., *The International Operations of National Firms: A Study of Direct Investment*, PhD Thesis, MIT Press, 1960.

Hymer, S.H., *Direct Foreign Investments and the National Economic Interest*, Yale University Economic Growth Center, 1967.

Hymer, S.H., The Efficiency Contradictions of Multinational Corporations, *American Economic Review*, Vol. 60, 1970, pp. 441-448.

Ireland, R.D., M.A. Hitt, R.A. Bettis, and D.A. DePorras, Strategy Formulation Processes: Differences in Perceptions of Strenghts and Weaknesses Indicators and Environmental Uncertainty by Managerial level, *Strategic Management Journal*, Vol. 8, 1987, pp. 469-485.

Itami, H., *Mobilizing Invisible Assets*, Cambridge, Ma.: Harvard University Press, 1987.

Itami, H., Mobilizing Invisible Assets: The Key for Successful Corporate Strategy. In: E. Punset and G. Sweeney, *Information Resources and Corporate Growth*, London: Pinter Publishers, 1989, pp. 36-46.

Ives, B., and M.H. Olson, User Involvement and MIS success: A Review of Research, *Management Science*, Vol. 30, 1984, pp. 586-603.

Johanson, J., and J. E. Vahlne, The Internationalization Process of the Firm: A Model of Knowledge Development and Increasing Foreign Market Commitments, *Journal of International Business Studies*, Vol. 8, 1977, pp. 11-24.

Johnson, H.T., *Relevance Regained - From Top-down Control to Bottom-up Empowerment*, New York, NJ: The Free Press, 1992.

Johnson, H.T., and R.S. Kaplan, *Relevance Lost - The Rise and Fall of Management Accounting*, Boston, Ma.: Harvard Business School Press, 1987.

Johnson, G., and K. Scholes, *Exploring Corporate Strategy*, Englewood Cliffs, NJ: Prentice Hall, 1988.

Johnston, W.P. and R.C. Oman, Overcoming Resistance to Change, *Knowledge: Creation, Diffusion, Utilization*, Vol. 11, 1990, pp. 268-279.

Katz, R., and T.J. Allen, Investigating the Not Invented Here Syndrome: A Look at the Performance, Tenure, and Communication Patterns of 50 R&D Project Groups, *R&D Management*, Vol. 12, 1982, pp. 7-19.

Katz, D., and R. Kahn, *The Social Psychology of Organizations*, New York, NJ: John Wiley, 1966.

Kedia, B.L., and R.S. Bhagat, Cultural Constraints on Transfer of Technology Across Nations: Implications for Research in International and Comparative Management, *Academy of Management Review*, Vol. 13, 1988, pp. 559-571.

Keller, R.T., and R.R. Chinta, International Technology Transfer: Strategies for Success, *Academy of Management Executive*, Vol. 4, 1990, pp. 33-43.

Keller, R.T., and W. Holland, Boundary Spanning Roles in an R&D Organization, *Academy of Management Journal,* Vol. 18, 1975, pp. 388-393.

Kennedy, M.M., Working Knowledge, *Knowledge: Creation, Diffusion, Utilization*, Vol. 5, 1983, pp. 193-211.

Kerlinger, F.N., *Foundations of Behavioural Research*, London: Holt, Rinehart, and Winston, 1986.

Kim, D.H., The Link between Individual and Organizational Learning, *Sloan Management Review*, Vol. 34, 1993, pp. 37-50.

Kimberly, J.R., Managerial Innovation. In: P. Nystrom & W. Starbuck (Eds.), *Handbook of Organization Design*, Oxford: Oxford University Press, 1981, pp. 203-225.

Knight, K.E., A Descriptive Model of Intra-firm Innovation Process, *Journal of Business*, Vol. 40, 1967, pp. 478-496.

Kindleberger, C.P. (Ed.), *The International Corportion*, Cambridge, Ma.: MIT Press, 1970.

Kogut, B., and U. Zander, Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology, *Organization Science*, Vol. 3, August 1992, pp. 383-397.

Koontz, H., The Management Theory Jungle Revisited, *Academy of Management Review*, Vol. 5, 1980, pp. 175-187.

Kops, H., Bij de Kritische Succesfactoren staan we nu een Top-down Benadering voor - Meer Concernsturing na Strategische Herorientatie bij Unilever, *Elan*, February 1996, pp. 10-15.

Kozmetsky, G., The Coming Economy. In: F. Williams and D.V. Gibson, *Technology Transfer - A Communication Perspective*, London: Sage, 1990, pp. 21-40.

Kusekoski, G., Corporate Videotex: A Strategic Business Information System, *MIS Quarterley*, December 1989, pp. 447-456.

Kydd, C.T., and D.L. Ferry, Managerial Use of Video Conferencing, *Information & Management*, Vol. 27, 1994, pp. 369-375.

Lasserre, P., Training: Key to Technological Transfer, *Long Range Planning*, Vol. 15, 1982, pp. 51-60.

Lasserre, P., Regional Headquarters: The Spearhead for Asia Pacific Markets, *Long Range Planning*, Vol. 29, 1996, pp. 30-37.

Lawler, E.E. and J.G. Rhodes, *Information and Control in Organizations*, Santa Monica, Ca.: Goodyear Publishing Co., 1976.

Lawrence, P.R. and J. Lorsch, *Organization and Environment - Managing Differentiation and Integration*, Homewood, Ill.: Richard D. Irwin Inc, 1967.

Learned, E.P., C.R. Christensen, K.R. Andrews, and W.D. Guth, *Business Policy - Text and Cases,* Homewood, Ill: Richard D. Irwin, 1969.

Lengel, R.H. and R.L. Daft, *An Exploratory Analysis of the Relationship Between Media Richness and Managerial Information Processing*, Texas: A&M University, 1984.

Lenz, R.T. and J.L. Engledow, Environmental Analysis: The Applicability of Current Theory, *Strategic Management Journal,* Vol. 7, 1986, pp. 329-346.

Leonard-Barton, D., Implementation as Mutual Adaptation of Technology and Organization, *Research Policy*, Vol. 17, 1988, pp. 251-267.

Leonard-Barton, D., The Intraorganizational Environment: Point-to-Point Versus Diffusion. In: F. Williams and D.V. Gibson (Eds.), *Technology Transfer - A Communication Perspective*, London: Sage, 1990a, pp. 43-62.

Leonard-Barton, D., A Dual Methodology for Case studies: Synergetic Use of a Longitudinal Single Site with Replicated Multiple Sites, *Organization Science*, Vol. 1, 1990b, pp. 248-266.

Leonard-Barton, D., Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development, *Strategic Management Journal*, Vol. 13, Summer Special, 1992, pp. 111-125.

Leonard-Barton, D., *Wellsprings of Knowledge - Building and Sustaining the Sources of Innovation*, Boston, Ma.: Harvard Business School Press, 1995.

Leonard-Barton, D., and I. Deschamp, Managerial Influence on the Implementation of New Technology, *Management Science*, Vol. 34, 1988, pp. 1252-1265.

Leonard-Barton, D., and E.M. Rogers, *Horizontal Diffusion of Innovations: An Alternative Paradigm to the Classical Diffusion Model*, Working Paper 1241-81, Sloan School of Management, Cambridge, Ma.: MIT, 1981.

Leonard-Barton, D., and D.K. Sinha, Developer-User Interaction and User Satisfaction in Internal Technology Transfer, *Academy of Management Journal,* Vol. 38, 1993, pp. 1125-1139.

Lessem, R., *Business as a Learning Community: Applying Global Concepts to Organizational Learning*, London: McGraw-Hill, 1993.

Levinthal, D.A., and J.G. March, The Myopia of Learning, *Strategic Management Journal,* Vol. 14, Winter Special Issue, 1993, pp. 95-112.

Levitt, B. and J.G. March, Organizational Learning, *Annual Review of Sociology*, Vol. 14, 1988, pp. 319-340.

Levitt, T., *The Marketing Imagination*, New York: The Free Press, 1991.

Lippman, S.A. and R.P. Rumelt, Uncertain Imitability: An Analysis of Interfirm Differences in Efficiency under Competition, *Bell Journal of Economics*, 13, 1992, pp. 418-438.

Lorange, P., B. Chakravarthy, J. Roos, and A. van der Ven (Eds.), *Implementing Strategic Processes: Change, Learning and Co-operation,* Cambridge, Ma.: Blackwell, 1993.

Lorenzoni, G., and C. Baden-Fuller, Creating a Strategic Center to Manage a Web of Partners, *California Management Review,* Vol. 37, 1995, pp. 146-163.

Lorsch, J.W., and S.A. Allen, *Managing Diversity and Inter-Dependence: An Organizational Study of Multidivisional Firms*, Boston, Ma.: Harvard Business School Press, 1973.

Lubatkin, M., and S. Chatterjee, Extending Modern Portfolio Theory into the domain of Corporate Diversification: Does it Apply?, *Academy of Management Journal*, Vol. 37, 1994, pp. 109-136.

Lyles, M.A., and C.R. Schwenk, Top Management, Strategy and Organizational Knowledge Structures, *Journal of Management Studies*, Vol. 29, 1992, pp. 155-174.

Macdonald, S., Informal Information Flow and Strategy in the International Firm, *International Journal of Technology Management*, Vol. 11, 1996, pp. 219-232.

Macdonald, S., and C. Williams, The Survival of the Gatekeeper, *Research Policy*, Vol. 23, 1994, pp. 123-132.

Maduef, B., International Technology Transfers and International Technology Payments: Definitions, Measurement and Firm's Behaviour, *Research Policy*, Vol. 13, 1984, pp. 125-140.

Mahoney, J.T., Strategic Management and Determinism, *Journal of Management Studies*, Vol. 30, 1993, pp. 173-191.

Mahoney, J.T., The Management of Resources and The Resources of Management, *Journal of Business Research*, Vol. 33, 1995, pp. 91-101.

Mahoney, J.T., and J.R. Pandian, The Resource-Based View Within the Conversation of Strategic Management, *Strategic Management Journal,* Vol. 13, 1992, pp. 363-380.

Maljers, F.A., Inside Unilever: The Evolving Transnational Company, *Harvard Business Review*, September-October 1992, pp. 46-52.

Maljers, F.A., C. Baden-Fuller, and F. van den Bosch, Maintaining Strategic Momentum, The CEO's Agenda, *European Management Journal*, Vol. 14, 1996, pp. 555-561.

Malnight, T.W., The Transition from Decentralized to Network-Based MNC Structures: An Evolutionary Perspective, *Journal of International Business Studies*, Vol. 27, 1996, pp. 45-65.

Mansfield, E., International Technology Transfer: Forms, Resource Requirements, and Policies, *American Economic Review*, Vol. 65, 1975, pp. 372-376.

Mansfield, E., and A. Romeo, Technology Transfer to Overseas Subsidiaries by US based Firms, *Quarterly Journal of Economics*, Vol. 95, 1980, pp. 737-750.

March, J.G., Exploitation and Exploration in Organizational Learning, *Organization Science*, Vol. 2, 1991, pp. 71-87.

March, J. G., and H. A. Simon, *Organizations*, New York: Wiley, 1958.

Marcowitz, H.M., Portfolio Selection, *Journal of Finance*, Vol. 7, 1952, pp. 77-91.

Marcowitz, H.M., *Portfolio Selection: Efficient Diversification of Investments*, New York: John Wiley, 1959.

Marschan, R., New Structural Forms in Multinationals: Decentralization at the Expense of Personal Communication Networks, *International Journal of Technology Management*, Vol. 11, 1996, pp. 192-206.

Martin, C., and P. Powell, *Information Systems: A Management Perspective*, London: McGraw-Hill, 1992.

Martinez, J.I., and J.C. Jarillo, The Evolution of Research on Coordination Mechanisms in Multinational Enterprises, *Journal of International Business Studies*, Vol. 20, 1989, pp. 489-514.

Martins, L.L., *A Model of Impacts of Advanced Information Technologies on Organizational Knowledge, Structure, and Performance of Professional Service Firms,* Paper Stern School of Business, New York University, 1994.

Maruca, R.F., The Right Way to go Global: An Interview with Whirlpool CEO David Whitwam, *Harvard Business Review*, March-April 1994, pp. 134-145.

Mason, E.S., Price and Production Policies of Large Scale Enterprises, *American Economic Review*, Vol. 29, March 1939, pp. 61-74.

McKinnon, S.M., and W.J. Burns, *The Information Masaic - How Managers get the Information they Really Need*, Boston, Ma.: Harvard Business School Press, 1992.

Melin, L., Internationalization as a Strategy Process, *Strategic Management Journal*, Vol. 13, Winter Special Issue, 1992, pp. 99-118.

Merton, R.K., *Social Theory and Social Structures*, New York: The Free Press, 1968.

Miller, D., The Structural and Environmental Correlates of Business Strategy, *Strategic Management Journal*, Vol. 8, 1987, pp. 55-76.

Miller, D., Environmental Fit versus Internal Fit, *Organization Science*, Vol. 3, 1992, pp. 159-178.

Mintzberg, H., *The Structuring of Organizations*, Englewood Cliffs; NJ: Prentice Hall, 1979.

Mintzberg, H., Ideology and the Missionary Organization. In: H. Mintzberg and J.B. Quinn, *The Strategy Process - Concepts, Contexts, Cases*, Englewood Cliffs, NJ: Prentice-Hall, 2nd Edition, 1991, pp. 352-358.

Mintzberg, H., O. Raisinghani, and A. Theoret, The Structure of Unstructured Decision Processes, *Administrative Science Quarterly*, Vol. 21, 1976, pp. 246-275.

Mintzberg, H. and J. Waters, Does Decision Get in the Way, *Organization Studies*, Vol. 11, 1990, pp. 1-6.

Montgomery, C.A., Product-Market Diversification and Market Power, *Academy of Management Journal*, Vol. 28, 1985, pp. 789-798.

Morton, J., *Organizing for Innovation*, New York: McGraw-Hill, 1971.

Naisbitt, J., and P. Arburdene, *Re-inventing the Corporation: Transforming your Job and your Company for the New Information Society*, New York: Warner Books, 1986.

Nelson, R.R., and S.G. Winter, *An Evolutionary Theory of Economic Change*, Cambridge, Ma.: Harvard University Press, 1982.

Nelson, R.R., Why do Firms Differ and How Does It Matter?, *Strategic Management Journal,* Vol. 12, Winter Special Issue, 1991, pp. 61-74.

Nohria, N., and S. Ghoshal, Differentiated Fit and Shared Values: Alternatives for Managing Headquarters Subsidiary Relations, *Strategic Management Journal*, Vol. 15, 1994, pp. 491-502.

Nonaka, I. , Towards Middle-Up-Down Management: Accelerating Information Creation, *Sloan Management Review*, Vol. 29, Spring 1988a, pp. 9-18.

Nonaka, I, Creating Organizational Order out of Chaos: Self-renewal in Japanese Firms, *California Management Review*, Vol. 30, Spring 1988b, pp. 57-73.

Nonaka, I, Redundant, Overlapping Organization: A Japanese Approach to Managing the Innovation Process, *California Management Review*, Vol. 32, 1990, pp. 27-38.

Nonaka, I., The Knowledge-Creating Company, *Harvard Business Review*, November-December 1991, pp. 96-104.

Nonaka, I., A Dynamic Theory of Organizational Knowledge Creation, *Organization Science*, Vol. 5, 1994. pp. 14-37.

Nonaka, I., and H. Takeuchi, *The Knowledge-Creating Company - How Japanese Companies Create the Dynamics of Innovation*, New York: Oxford University Press, 1995.

O'Reilly, C., Variations in Use of Decision Makers' Use of Information Sources: The Impact of Quality versus Accessibility of Information, *Academy of Management Journal*, Vol. 25, 1982, pp. 756-771.

Ohmae, K., *Triad Power - The Coming Shape of Global Competition*, New York: The Free Press, 1985.

Ohmae, K., *Beyond National Borders,* Tokyo: Kodansha, 1987.

Ouchi, W.G., Markets, Bureaucracies and Clans, *Administrative Science Quarterly*, Vol. 25, 1980, pp. 120-142.

Ounjian, M.L., and E.B. Carne, A Study of the Factors which affect Technology Transfer in a Multi-location Business Unit Corperation, *IEEE Transactions on Engineering Management*, Vol. 34, 1987, pp. 194-201.

Padmanabhan, V., and W. E. Souder, A Brownian Motion Model for Technology Transfer: Applications to a Machine Maintenance Expert System, *Journal of Product Innovation Management*, Vol. 11, 1994, pp. 119 - 133.

Park, H., S.D. Hwang and J.K. Harrison, Sources and Consequences of Communication Problems in Foreign Subsidiaries: the Case of United States Firms in South Korea, *International Business Review*, Vol. 5, 1996, pp. 79-98.

Pavitt, K., Technology Transfer among the Industrial Advanced Countries: An Overview. In: N. Rosenberg and C. Frischtak (Eds.), *International Technology Transfer: Concepts. Measures, and Comparisons*, New York: Praeger, 1985, pp. 3-23.

Pavitt, K., The Objectives of Technology Policy, *Science and Public Policy*, Vol. 14, August 1987, pp. 182-188.

Pavitt, K., What We Know about the Strategic Management of Technology, *California Management Review*, Vol. 32, Spring 1990, pp. 17-26.

Pennings, J.M., and F. Harianto, The Diffusion of Technological Innovation in the Commercial Banking Industry, *Strategic Management Journal*, Vol. 13, 1992, pp. 29-46.

Pennings, J.M., and F. Harianto, Technological Networking and Innovation Implementation, *Organizational Science*, Vol. 3, 1992, pp. 356-383.

Penrose, E.G., *The Theory of the Growth of the Firm*, New York: Wiley, 1959.

Perrino, A.C. and J.W. Tipping, Global Management of Technology, *Research-Technology Management*, Vol. 32, 1989, pp. 12-19.

Peteraf, M., The Cornerstones of Competitive Advantage: A Resource-Based View, *Strategic Management Journal*, Vol. 14, 1993, pp. 179-191.

Peters, T., *Crazy Times Call for Crazy Organizations - The Tom Peters Seminars,* New York: Vintage Books, 1994.

Pettigrew, A.M., Information Control as a Power Resource, *Sociology*, Vol. 6, 1972, pp. 187-204.

Pettigrew, A.M., On Studying Organizational Cultures, *Administrative Science Quarterly*, Vol. 24, 1979, pp. 570-581.

Pettigrew, A.M. (Ed.), *The Management of Strategic Change*, Oxford: Basil Blackwell, 1987.

Pettigrew, A.M, Context and Action in the Transformation of the Firm, *Journal of Management Studies*, Vol. 24, 1987, pp. 649-670.

Pettigrew, A.M. (Ed.), *Competitiveness and the Management Process*, Oxford: Basil Blackwell, 1988.

Pettigrew, A.M., Studying Strategic Choice and Strategic Change. A Comment on Mintzberg and Waters: "Does Decision Get in the Way?", *Organization Studies*, Vol. 11, 1990, pp. 6-11.

Pettigrew, A.M., and R. Whipp, *Managing Change for Competitive Success*, Oxford: Blackwell, 1991.

Pettigrew, A.M., and R. Whipp, Managing the Twin Process of Competition and Change - The Role of Intangible Assets. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes,* Cambridge, Ma.: Blackwell, 1993, pp. 3-41.

Pfeffer, J.R., *Organizational Design*, Arlington Heights, Ill.: AHM Publishing, 1978.

Pfeffer, J.R., *Power in Organizations,* Marshfield, Ma.: Pitman, 1981.

Pfeffer, J.R., Competitive Advantage Through People, *California Management Review*, Vol. 36, 1994, pp. 9-28.

Pfeffer, J.R., and G.R. Salancik, *The External Control of Organizations: A Resource Dependence Perspective*, New York: Harper & Row, 1978.

Pinkston, J.T., Technology Transfer: Issues for Consortia. In: K.D. Walters, *Entrepreneurial Management: New Technology and New Market Development*, Boston, Ma.: Ballinger, 1989, pp. 143-149.

Pisano, G., Knowledge, Integration, and the Locus of Learning: An Empirical Analysis of Process Development, *Strategic Management Journal*, Vol, 15, Winter Special Issue, 1994, pp. 85-100.

Pitts, R.A., Strategies and Structures for Diversification, *Academy of Management Journal*, Vol. 20, 1977, pp. 197-208.

Polanyi, M., *Personal Knowledge: Towards a Post-Critical Philosophy*, London: Routledge, 1958.

Polanyi, M., *The Tacit Dimension*, New York: Anchor Day Books, 1966.

Popper, K., *Objective Knowledge - An Evolutionary Approach*, Oxford: Oxford University Press, 1972.

Porter, M.E., *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, New York: Free Press, 1980.

Porter, M.E., *Competitive Advantage: Creating and Sustaining Superior Advantage*, New York: The Free Press, 1985.

Porter, M.E., From Competitive Advantage to Corporate Strategy, *Harvard Business Review*, May-June 1987, pp. 43-59.

Porter, M.E., *The Competitive Advantage of Nations*, New York: The Free Press, 1990.

Porter, M.E., and V.E. Millar, How Information Gives You Competitive Advantage, *Harvard Business Review*, July-August 1985, pp. 149-160.

Prahalad, C.K., *The Strategic Process in a Multinational Corporation*, Unpublished Doctoral Dissertation, School of Business Administration, Harvard University, 1975.

Prahalad, C.K., and R.A. Bettis, The Dominant Logic: A New Linkage Between Diversity and Performance, *Strategic Management Journal*, Vol. 7, 1986, pp. 485-501.

Prahalad, C.K., and Y. Doz, Strategic Control - The Dilemma in Headquarters-Subsidiary Relationships. In: L. Otterbeck (Ed.), *The Management of Headquarters:Subsidiary Relationships in Multinational Corporations*, London: Gower, 1981a, pp. 187-203.

Prahalad, C.K., and Y. Doz, An Approach to Strategic Control in MNCs, *Sloan Management Review*, Vol. 22, 1981b, pp. 5-13.

Prahalad, C.K., and Y.L. Doz, *The Multinational Mission*, New York: The Free Press, 1987.

Prahalad, C.K., and G. Hamel, The Core Competence of the Corporation, *Harvard Business Review*, May-June 1990, pp. 79-91.

Pucik, V., Technology Transfer in Strategic Alliances: Competitive Collaboration and Organizational Learning. In: T. Agmon and M.A. von Glinow (Eds.), *Technology Transfer in International Business*, Oxford: Oxford University Press, 1991, pp. 121-138.

Quinn, J.B., *Intelligent Enterprise: A Knowledge and Service Based Paradigm for Industry*, New York: The Free Press, 1992.

Rados, D.L., Selection and Evaluation of Alternatives in Repetitive Decision Making, *Administrative Science Quarterly*, Vol. 17, 1972, pp. 196-206.

Reddy, N.M., and L. Zhao, International Technology Transfer: A Review, *Research Policy*, Vol. 18, 1990, pp. 1-18.

Reich, R.B., *The Work of Nations*, New York: Alfred A. Knopf, 1991.

Reilly, D.J., Technology Transfer: Successful only if Process is Managed, *Manufacturing Systems*, April 1988, pp. 62-64.

Reve, T., The Firm as a Nexus of Internal and External Contracts, In: M. Aoki, B. Gustafsson, and O.E. Williamson (Eds.), *The Firm as a Nexus of Contracts*, London: Sage, 1990, pp. 133-161.

Richardson, D.B., and V. Rullo, Going Global: Are You Ready for an Overseas Assignment, *Management Accounting*, Vol. 73, June 1992, pp. 31-39.

Ring, P.S., and, A. van de Ven, Developmental Processes of Cooperative Interorganizational Relationships, *Academy of Management Review*, Vol. 19, 1994, pp. 90-118.

Robbins, S.P., *Organizational Behavior - Concepts, Controversies, and Applications*, Englewood Cliffs, NJ: Prentice Hall, 1989.

Robbins, S.P., *Organization Theory - Structure, Design, and Applications*, Englewood Cliffs, NJ: Prentice Hall, 1990.

Robertson, M., J. Swan, and S. Newell, The Role of Networks in the Diffusion of Technological Innovation, *Journal of Management Studies*, Vol. 33, 1996.

Rogers, E.M., *Diffusion of Innovations*, New York: Free Press, 1983.

Rogers, E.M., *Diffusion of Innovations*, New York: Free Press, 1995.

Rogers, E.M., and D.L. Kincaid, *Communication Networks: A New Paradigm for Research*, New York: Free Press, 1981.

Rogers, E.M., and F.F. Shoemaker, *Communication of Innovations: A Cross-Cultural Approach*, New York: The Free Press, 1971.

Ronstad, R., and R.J. Kramer, Getting the most our of Innovation Abroad, *Harvard Business Review*, March-April 1982, pp. 94-99.

Ross, P.F., Innovation Adoption by Organizations, *Personnel Psychology*, Vol. 27, 1974, pp. 21-47.

Rugman, A.M, *Inside the Multinational - The Economics of Internal Markets*, London: Croom Helm, 1981.

Rugman, A.M., and A. Verbeke, A Note on the Transnational Solution and the Transaction Cost Theory of Multinational Strategic Management, *Journal of International Business Studies*, Vol. 55, 1992, pp. 761-771.

Ruigrok, W.M., and R. van Tulder, *The Logic of International Restructuring*, London: Routledge, 1995.

Rumelt, R.P., *Strategy, Structure, and Economic Performance*, Cambridge, Ma.: Harvard University Press, 1974.

Rumelt, R.P., The Evaluation of Business Strategy. In: W.F. Glueck, *Business Policy and Strategic Management*, New York: McGraw-Hill, 1980, pp. 359-367.

Rumelt, R.P., Towards a Strategic Theory of the Firm. In: R.B. Lamb (Ed.), *Competitive Strategic Management*, Englewood Cliffs, NJ: Prentice Hall, 1984, pp. 566-570.

Rumelt, R.P., Theory, Strategy, and Entrepreneurship. In: D. Teece (Ed.), *The Competitive Challenge*, Cambridge: Ballinger, 1987, pp. 137-158.

Rumelt, R.P., How much does Industry matter?, *Strategic Management Journal*, Vol. 12, 1991, pp. 167-185.

Sai, Y., *The Eight Core Values of the Japanese Businessman - Toward an Understanding of Japanese Management*, New York: The Haworth Press, 1995.

Schein, E.H., *Organizational Culture and Leadership*, San Francisco, Ca.: Jossey-Bass, 1985.

Schenk, H., Fusies als Economisch en Strategisch Verschijnsel. In: J.C.K.W. Bartel and R.A.I. van Frederikslust (Eds.), *Fusies en Acquisities*, Alphen a/d Rijn: Stenfert Kroese, 1990.

Schön, D., *Beyond the Stable State*, New York: Norton, 1971.

Schumpeter, J.A., *The Theory of Economic Development*, Cambridge, Ma.: Harvard University Press, 1934.

Schumpeter, J.A., *Capitalism, Socialism, and Democracy*, New York: Harper and Brothers, 1942.

Schwenk, C.R., Cognitive Simplification Processes in Strategic Decision Making, *Strategic Management Journal*, Vol. 5, 1984, pp. 111-128.

Schwenk, C.R., The Cognitive Perspective on Strategic Decision Making, *Journal of Management Studies*, Vol. 25, 1988, pp. 41-55.

Scott Morton, M.S. (Ed.), *The Corporation of the 1990s - Information Technology and Organizational Transformations*, New York: Oxford University Press, 1991.

Selznick, P., *Leadership in Administration: A Sociological Interpretation*, New York: Harper & Row, 1957.

Senge, P.M., *The Fifth Discipline: The Art and Practice of the Learning Organization*, New York: Doubleday, 1990.

Shannon, C.E., and W. Weaver, *The Mathematical Theory of Communication*, Chicago, Ill.: University of Illinois Press, 1949.

Sharpe, W.F., A Simplified Model for Portfolio Analysis, *Management Science*, Vol. 9, January 1963, pp. 277-293.

Sharpe, W.F., *Portfolio Theory and Capital Markets*, New York: McGraw-Hill, 1970.

Simon, H.A., *Administrative Behaviour*, New York: Macmillan, 3rd Ed. (1st Ed. pubished in 1945), 1976.

Simon, H.A., Bounded Rationality and Organizational Learning, *Organization Science*, Vol. 2, 1991, pp. 125-134.

Smeulders, A. and R. van Tulder, De Complexiteit van "Cim"plisme: Business Processes Integration by Van den Bergh en Jurgens Margarinefabriek. In: R. van Tulder and R. Wagenaar (Eds.), *Omgaan met Dilemma's - Zeven Cases in Strategie en Informatie*

Technologie in Mainport Rotterdam, Deventer: Kluwer Bedrijfswetenschappen, 1995, pp. 131-159.

Smilor, R., and D.V. Gibson, Accelerating Technology Transfer in R&D Consortia, *Research Technology Management*, January-February 1991, pp. 44-49.

Smilor, R., and D.V. Gibson, Technology Transfer in Multi-Organizational Environments: The Case of R&D Consortia, *IEEE Transactions on Engineering Management*, Vol. 38, February 1991, p. 3-13.

Smith, K.G., S.J. Carroll, and S.J. Ashford, Intra- and Interorganizational Cooperation: Toward a Research Agenda, *Academy of Management Journal,* Vol. 38, 1995, pp. 7-23.

Souder, W.E., and V. Padmanabhan, Transferring New Technologies from R&D to Manufacturing, *Research-Technology Management*, Vol. 32, September-October 1989, pp. 38-43.

Spence, W.R., *Innovation - The Communication of Change in Ideas, Practices and Products*, London: Chapman & Hall, 1994.

Spender, J.C., Competitive Advantage from Tacit Knowledge? - Unpacking the Concept and its Strategic Implications. In: B. Moingeon and A. Edmondson (Eds.), *Organizational Learning and Competitive Advantage*, London: Sage, 1996, pp. 56-73.

Stalk, G., P. Evans, and L.E. Schulman, Competing on Capabilities: The New Rules of Corporate Strategy, *Harvard Business Review*, March-April 1992, pp. 57-69.

Stopford, J.M., and C.W.F. Baden-Fuller, Organizational Strategies for Building Corporate Entrepreneurship. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes,* Cambridge, Ma.: Blackwell, 1993, pp. 117-144.

Stopford, J.M., and L.T. Wells, *Managing the Multinational Enterprise*, New York: Basic Books, 1972.

Surlemont, B., *The Development of Strategic Centres of Excellence (SCEs) in Multinational Corporations (MNCs): The Role of Organizational Context*, Paper presented at 14th Annual International Conference of the Strategic Management Society, 1994.

Sveiby, K., and T. Lloyd, *Managing Knowhow: Add Value by Valuing Creativity*, London: Bloomsbury, 1987.

Szulanski, G., *Unpacking Stickiness: An Empirical Investigation of the Barriers to Transfer Best Practice Inside the Firm,* INSEAD Working Paper Series 95/37/SM, 1995.

Szulanski, G., Unpacking Stickiness: An Empirical Investigation of the Barriers to Transfer Best Practice inside the Firm, *Academy of Management Best Papers Proceedings,* 1995b, pp. 437-441.

Szulanski, G., Exploring Internal Stickiness: Impediments to the Transfer of Best Practice within the Firm, *Strategic Management Journal,* Vol. 17 (Winter Special Issue), 1996, pp. 27-43.

Teece, D.J., Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technological Knowhow, *Economic Journal*, Vol. 87, June 1977, pp. 242-261.

Teece, D. J., Economies of Scope and the Scope of the Enterprise, *Journal of Economic Behavior and Organization*, Vol. 1, 1980.

Teece, D.J., The Market for Know-How and Efficient International Transfer of Technology, *Annals of American Academy of Political and Social Science*, Vol. 458, 1981, pp. 81-96.

Teece, D.J., Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy. In: D. Teece (Ed.), *The Competitive Challenge*, Cambridge, Ma.: Ballinger, 1987, pp.185-219.

Teece, D. J., G. Pisano and A. Shuen, *Firm Capabilities, Resources and the Concept of Strategy*, Working Paper no 90-8, University of California at Berkeley, 1994.

Teece, D.J., G. Pisano and A. Shuen, Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, forthcoming, 1997.

Thomas, R.J. (Ed.), *New Product Success Stories - Lessons from Leading Innovators*, New York: John Wiley, 1995.

Thompson, J.D., *Organizations in Action*, New York: McGraw-Hill, 1967.

Thurley, K., and H. Wirdenius, Will Managers become European?: Strategic Choice for Organisations, *European Management Journal*, Vol. 9, 1991, pp. 127-133.

Toffler, A., *Powershift: Knowledge. Wealth and Violence at the Edge of the 21st Century*, New York: Bantam Books, 1990.

Tomlin, B., Inter-Location Technical Communication in a Geographically Dispersed Research Organization, *R&D Management*, Vol. 11, 1981, pp. 19-23.

Tornatzky, L.G., and K. Klein, Innovation Characteristics and Innovation Adoption Implementation: A Meta-Analysis of Findings, *IEEE Transactions and Engineering Management*, Vol. 29, 1982, pp. 28-45.

Trompenaars, F., *Riding the Waves of Culture - Understanding Cultural Diversity in Business*, London: The Economist Books , 1993.

Tushman, M.L., and D.A. Nadler, Information processing as an integrating concept in organizational design, *Academy of Management Review*, Vol. 3, 1978, pp. 613-624.

Tversky , A. and D. Kahneman, The Framing of Decision and the Psychology Choice. In: G. Wright, *Behavioral Decision Making*, New York: Plenum Press, 1985.

Tyre, M., Managing the Introduction of New Process Technology: International Differences in a Multi-Plant Network, *Research Policy*, Vol. 20, 1991, pp. 57-76.

Vancil, R.F., *Decentralization: Managerial Ambiguity by Design*, New York: Financial Executives Research Foundation, 1980.

Van den Bosch, F.A.J. , Ontwikkelingen in de Wetenschappelijke Benadering van Strategie- en Omgevingsvraagstukken (1910-1990): History Matters! In: Van Driel, H. (Ed.), *Ontwikkelingen van Bedrijfskundig Denken en Doen: Een Rotterdams Perspectief*, Delft: Eburon, 1993, pp. 47-66.

Van den Bosch, F.A.J., Stakeholdermanagement bij Besluitvorming over Strategische Investeringsprojecten, *Maandblad voor Accountancy en Bedrijfseconomie*, Vol. 70, 1996, pp. 133-137.

Van den Bosch, F.A.J., and A.P. de Man, *Perspectives on Strategy - Contributions of Porter*, Dordrecht: Kluwer Academic Publishers, 1997.

Van der Ven, A.H., Central Problems in the Management of Innovations, *Management Science*, Vol. 32, 1988, pp. 590-607.

Van Geenhuizen, M.S, *Technology Transfer and Barriers: The Role of Intermediary Organisations*, Economic Geography Institute of Erasmus University Rotterdam, 1993.

Van Tulder, R., and G.Junne, *European Multinationals in Core Technologies,* Chichester: Wiley, 1988.

Venkatraman, N. and Camillus J.C., Exploring the Concepts of Fit in Strategic Management, *Academy of Management Review*, Vol. 9, 1984, pp. 513-525.

Venkatraman, N., The Concept of Fit in Strategy Research: Towards Verbal and Statistical Correspondence, *Academy of Management Review,* Vol. 14, 1989, pp. 423-444.

Verbeek, M., *Management Control in ITT Gouden Gids*, Thesis Registercontrollersopleiding Vrije Universiteit te Amsterdam, 1994.

Von Hippel, E., The Dominant Role of Users in the Scientific Instrumentation Innovation Process, *Research Policy*, Vol. 5, 1976, pp. 212-239.

Von Hippel, E., *The Sources of Innovation*, Cambridge, Ma.: MIT Press, 1988.

Von Hippel, E., Sticky Informaton and the Locus of Problem Solving: Implications for Innovation, *Management Science*, Vol. 40, 1994, pp. 429-439.

Von Krogh, G., and J. Roos, Conversation Management, *European Management Journal*, Vol. 13, December 1995, pp. 390-394.

Von Krogh, G. and J. Roos (Eds.), *Managing Knowledge - Perspectives on Cooperation and Competition*, London: Sage, 1996.

Von Krogh, G., J. Roos, and K. Slocum, An Essay on Corporate Epistemology, *Strategic Management Journal*, Vol. 15 , Winter Special Issue, 1994, pp. 53-71.

Von Krogh, G., and S. Vicari, An Autopoiesis Approach to Experimental Strategic Learning. In: P. Lorange, B. Chakravarthy, J. Roos, and A. van der Ven, *Implementing Strategic Processes,* Cambridge, Ma.: Blackwell, 1993, pp. 394-410.

Wagner, J.A., Studies of Individualism-Collectivism: Effects on Cooperation in Groups, *Academy of Management Journal*, Vol. 38, 1995, pp. 152-172.

Walker, G., Network Position and Cognition in a Computer Software Firm, *Administrative Science Quarterly*, Vol. 30, 1985, pp. 103-130.

Walsh, J.P. and G.R. Ungson, Organizational Memory, *Academy of Management Review*, Vol. 16, 1991, pp. 57-91.

Watson, G., Resistance to Change. In: G. Zaltman (Ed.), *Processes and Phenomena of Social Change,* New York: John Wiley, 1973.

Weick, K.E., Organizational Culture as a Source of High Reliability, *California Management Review,* Vol. 29, Winter 1987, pp. 112-127.

Weick, K.E., Technology as Equivoque: Sense-making in New Technologies. In: P.S. Goodman and L.S. Sproull (Eds.), *Technology and Organization*, San Francisco, Ca.: Jossey-Bass, 1990, pp. 1-44.

Wernerfelt, B., A Resource-Based View of the Firm, *Strategic Management Journal*, Vol. 5, 1984, pp. 171-180.

Whipp, R., R. Rosenfeld, and A. Pettigrew, Culture and Competitiveness: Evidence from Two Mature UK Industries, *Journal of Management Studies*, Vol. 26, 1989, pp. 561-585.

Whitehill, A.M., *Japanese Management - Tradition and Transition*, London: Routledge, 1991.

Whitley, R. (Ed.), *European Business Systems: Firms and Markets in their National Contexts*, London: Sage, 1992.

Wiener, Y., Forms of Value Systems: A Focus on Organizational Effectiveness and Cultural Change and Maintenance, *Academy of Management Review*, Vol. 13, 1988, pp. 534-545.

Wikström, S., and R. Normann, *Knowledge & Value - A New Perspective on Corporate Transformation*, London: Routledge, 1994.

Williams, F., and D.V. Gibson (Eds.), *Technology Transfer - A Communication Perspective*, London: Sage, 1990.

Williamson, O.E., *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: The Free Press, 1975.

Winter, S., Knowledge and Competence as Strategic Assets. In: D. Teece (Ed.), *The Competitive Challenge*, Cambridge: Ballinger, 1987, pp. 159-184.

Wishart, N.A., J.J. Elam, and D. Robey, Redrawing the Portrait of a Learning Organization: Inside Knight-Ridder, Inc., *Academy of Management Executive*, Vol. 10, 1996, pp. 7-20.

Wolff, M.F., Technology Transfer: A GM Manager's Strategy, *Research-Technology Management*, Vol. 32, September-October, 1989, pp. 9-10.

Yates, J. and R.I. Benjamin, The Past and Present as a Window on the Future. In: Michael S. Scott Morton (Ed.), *The Corporation of the 1990s - Information Technology and Organizational Transformations*, New York: Oxford University Press, 1991, pp. 27-60.

Yin, R.K., *Case Study Research: Design & Methods*, Applied Social Research Methods Series, Vol. 5, Newbury Park, Ca.: Sage, 1989.

Zaheer, A., and N. Venkatraman, Relational Governance as an Interorganizational Strategy - An Empirical Test of the Role of Trust in Economic Exchange, *Strategic Management Journal*, Vol. 16, 1995, pp. 373-392.

Zaire, M., *Benchmarking from Best Practice: Continuous Learning through Sustainable Innovation*, Oxford: Butterworth-Heinemann, 1996.

Zaltman, G., R. Duncan, and J. Holbek, *Innovations and Organizations*, New York: Wiley, 1973.

Zander, U., *Exploiting a Technological Edge - Voluntary and Involuntary Dissemination of Technology*, Doctoral Dissertation, Stockholm: Stockholm School of Economics, 1991.

Zetlin, M., Making Tracks, *Journal of European Business*, Vol. 5, May-June 1994, pp. 40-47.

Zmud, R.W., Diffusion of Modern Software Practices: Influence of Centralization and Formalization , *Management Science*, Vol. 28, 1982, pp. 1421-1431.

Zmud, R.W., An Examination of Push-Pull Theory applied to Process Innovation in Knowledge Work , *Management Science*, Vol. 30, 1984, pp. 727-738.

Zuboff, S., *In the Age of the Smart Machine: the Future of Work and Power*, New York: Basic Books, 1988.

Samenvatting

In toenemende mate staat kennis als een waardevolle produktiefaktor in de belangstelling van zowel academici als managers. Kennis over hulpmiddelen, bedrijfsprocessen en marktomstandigheden kan, zo veronderstelt men, een onderneming doen onderscheiden van haar concurrenten en in dit opzicht de basis vormen voor het verwerven van een concurrentievoordeel. In het verlengde van deze toenemende waardering voor kennis ligt het groeiende belang dat wordt toegeschreven aan de opsporing, absorptie, ontwikkeling en uitbuiting van kennis als een dynamische bron van concurrentievermogen. De "lerende organisatie" wordt positief gewaardeerd en sommige auteurs stellen dat het vermogen van een onderneming om op een effectieve en efficiënte manier te leren in wezen het bestaansrecht van een onderneming vertegenwoordigt. In een tijd waarin een "voorsprong" snel en effectief kan worden geïmiteerd, lijkt een onderscheidende vaardigheid in het verwerven, accumuleren, combineren en benutten van kennis het enige voordeel dat kan worden bestendigd op lange termijn.

Veel wetenschappelijk onderzoek zal nog vereist zijn voordat we de processen in een "lerende organisatie" op een redelijke wijze kunnen doorgronden, verklaren en aansturen. Met name theoretische en praktische managementvraagstukken betreffende de exploitatie van informatie, ervaring en *know-how* worden nog te vaak over het hoofd gezien en verdienen daarom meer wetenschappelijke aandacht. Een belangrijk ondernemingsproces dat zich richt op het benutten en te gelde maken van kennis binnen de organisatie is de kennisuitwisseling die plaatsvindt tussen verschillende bedrijfsonderdelen. Besparingen op kennisontwikkelingskosten en een hogere effectiviteit van de kennisontwikkelingsaktiviteiten worden haalbaar indien een onderneming in staat is haar aanwezige kennis begrijpelijk en overdraagbaar te maken. De voordelen die verbonden zijn aan deze intra-organisationele kennisuitwisseling kunnen de bijdrage van het concern aan de rentabiliteit van de business units significant vergroten, de samenstelling van de *portfolio* tegenover de aandeelhouders

doen verklaren en tevens de concurrentie-strategieën van de afzonderlijke concernonderdelen versterken.

In de studie "Managing Intracorporate Knowledge Sharing" wordt het proces van intra-organisationele kennisuitwisseling bestudeerd met als doel een integratief raamwerk te ontwikkelen waarin het managen van het onderhavige proces binnen de context van een multinationale onderneming centraal staat. Dit raamwerk omvat een viertal proposities betreffende de managementsystemen die het proces van intra-organisationele kennisuitwisseling binnen een concernverband kunnen stimuleren en faciliteren. Een belangrijke aanname hierbij is dat de omvang en complexiteit van veel internationaal opererende ondernemingen een directe betrokkenheid van het topmanagement in de weg staan. Concernonderdelen opereren in een onderling afhankelijk netwerk waarin het onvoorspelbaar is welke kennisuitwisselingsrelaties tussen twee of meerdere concernonderdelen op welke momenten van belang zullen worden. Het topmanagement kan zich daarom beter beperken tot het scheppen van de juiste voorwaarden en de uitvoerende verantwoordelijkheid delegeren naar die lagen in de organisationele hiërarchie waar vraag en aanbod van kennis tot elkaar dienen te komen.

In de uitvoering van haar stimulerende en faciliterende taak dient het topmanagement een organisationele context te creëren die vorm kan geven aan het denken en doen van managers op lagere niveaus in de multinationale organisatie. Het topmanagement heeft voor de uitvoering van deze verantwoordelijkheid in potentie een aanzienlijke hoeveelheid aan managementinstrumenten tot haar beschikking. De uitwerking van deze managementinstrumenten op het proces van intra-organisationele kennisuitwisseling staat centraal in de onderhavige studie. De centrale vraagstelling *"Hoe moet het proces van intra-organisationele kennisuitwisseling worden gemanaged tussen de internationaal verspreide business-units van een multinationale onderneming?"* was hierbij het uitgangspunt en vormde de basis van een onderzoek waarin een balans werd gezocht tussen theoretische en empirische elementen.

NAAR EEN THEORETISCH AFGELEID INTEGRATIEF RAAMWERK

Intra-organisationele kennisuitwisseling wordt gedefinieerd als een proces waarin kennis wordt overgedragen van een kennisbezitter naar een kennisvrager die beiden vanuit juridisch oogpunt behoren tot hetzelfde concern. Kennis ontpopt haar toegevoegde waarde pas na toepassing in een praktijksituatie en kan zowel vakgericht als marktgericht zijn. Vakkennis verwijst naar de bekwaamheid ten aanzien van ingaande, doorgaande en uitgaande processen in een organisatie. Vakkennis uit zich in de vaardigheid op basis waarvan een onderneming huidige en toekomstige produkten kan vervaardigen en distribueren en mogelijke produkt- en procesinnovaties kan verwezenlijken. Marktkennis daarentegen omvat het aanwezige inzicht in land en regio-specifieke karakteristieken, omstandigheden en ontwikkelingen. Marktkennis is

gebaseerd op marktinformatie aangevuld met een zeker marktgevoel en stelt een onderneming in staat haar produkten en diensten af te stemmen op de behoeften van de consument. Marktkennis bepaalt in hoeverrre het noodzakelijk is de bedrijfsvoering aan te passen aan lokale omstandigheden en in dit opzicht stuurt zij de aanpassing van vakkennis met als uiteindelijk doel de waardering van lokale klanten, intermediairs en andere belanghebbenden te verkrijgen.

Hoofdstuk 2 benadrukt dat de uitdaging van het managen van intra-organisationele kennisuitwisseling niet is gelegen in de onbeperkte bevordering van dit proces. Het topmanagement zal moeten onderkennen dat ondernemingen zich onderscheiden door verschillen in de eisen die worden gesteld aan dat proces. Gebaseerd op bestaand onderzoek wordt verondersteld dat het vereiste niveau van intra-organisationele kennisuitwisseling voor het overgrote deel wordt bepaald door twee determinanten: (1) de *kennisomgeving* en (2) de *concernstrategie*. De kennisomgeving van een onderneming is afhankelijk van het belang van respectievelijk vak- en marktkennis in het streven naar concurrentievoordelen in de verschillende produktmarkten waarin de onderneming aktief is. De waarde van intra-organisationele kennisuitwisseling neemt toe met een groeiend belang van één van beide kennisvormen en stijgt zelfs disproportioneel indien een onderneming besluit tot de verwezenlijking van een effectieve kruisbestuiving tussen beide kennisvormen. De concernstrategie heeft haar invloed op het vereiste niveau van intra-organisationele kennisuitwisseling via het nagestreefde concernvoordeel, de kwalitatieve samenstelling van het concern en de kwantitatieve omvang van de onderneming. De eisen die worden gesteld aan intra-organisationele kennisuitwisseling nemen evenredig toe met de nadruk die door het topmanagement wordt gelegd op het belang van kennisuitwisseling, de gerelateerdheid van de concernonderdelen en de omvang van het concernverband.

Het topmanagement van een onderneming zal vanuit het oogpunt van haar strategische doelstellingen het werkelijke en het vereiste niveau van intra-organisationele kennisuitwisseling met elkaar in overeenstemming moeten brengen. Het werkelijke niveau van intra-organisationele kennisuitwisseling is afhankelijk van het aantal geïnitieerde en uitgevoerde kennisoverdrachtprojekten. Vanuit topmanagementperspectief is dat niveau te sturen middels de creatie van een organisationele context die vorm geeft aan het gewenste gedrag op lagere niveaus binnen de organisationele hiërarchie. De uitwerking van de organisationele context op het proces van intra-organisationele kennisuitwisseling wordt, zoals gesteld in hoofdstuk 2, bepaald door twee determinanten: (1) de *bestuurlijke erfenis* en (2) de geïmplementeerde *managementinstrumenten*. De bestuurlijke erfenis is de resultante van de manier waarop de onderneming in het verleden is vormgegeven. Iedere onderneming ontwikkelt over de jaren een karakteristieke manier waarop organisationele processen worden aangestuurd en uitgevoerd en het is deze bestuurlijke erfenis die vaak zeer moeilijk te veranderen is door haar verwevenheid met de gehele organisatie. Managementinstrumenten worden gehanteerd door een onderneming om richting en inhoud te geven aan veranderingsprocessen of bestaande processen te ondersteunen.

De onderhavige studie heeft zich, zonder de andere determinanten van het vereiste en werkelijke niveau van intra-organisationele kennisuitwisseling uit het oog te verliezen, met name gericht op de managementinstrumenten waarmee het topmanagement van een multinationale onderneming de uitwisseling van de aanwezige informatie, ervaring en know-how tussen de geografisch verspreide concernonderdelen kan stimuleren en faciliteren. Bij het zoeken naar de meest relevante managementinstrumenten is in de bestaande literatuur een diversiteit aan blokkerende en complicerende faktoren teruggevonden. Deze barrières zijn voornamelijk bestudeerd door wetenschappers in de hoek van technologieoverdracht en innovatiediffusie en hun bevindingen vormen een rijke voedingsbodem waarop het ontwikkelde raamwerk de benodigde managementsystemen voor het succesvol managen van intra-organisationele kennisuitwisseling integreert.

Een omvangrijke hoeveelheid aan barrières is bestudeerd en op basis van een procesbeschrijving geclassificeerd. De uitdaging lag daarbij niet in het presenteren en onderzoeken van nieuwe belemmerende faktoren, maar in het toegankelijk en toepasbaar maken van de bestaande en wetenschappelijk onderbouwde inzichten vanuit het perspectief van het topmanagement van een multinationale onderneming. Dit managementperspectief heeft een sterke sturing gegeven aan de clustering van de barrières door binnen de procesanalyse een onderscheid te maken tussen een beslissings- en een uitvoeringsfase (zie hoofdstuk 3). Elke uitvoerende managementaktie wordt voorafgegaan door een beslissing en het effectief managen van intra-organisationele kennisuitwisseling vergt daarom aandacht voor zowel de barrières die vooraf gaan aan het beslissingsproces als de belemmeringen die de uitvoering van de kennisoverdracht bemoeilijken.

De beslissingsfase bepaalt, als beschreven in hoofdstuk 4, het aantal in werking gestelde kennisuitwisselingsprojekten. Het initiatief om een kennisuitwisselingsmogelijkheid uit te voeren moet worden gesteund en opgepakt door zowel de kennisdrager als de kennisvrager voordat men tot de feitelijke uitvoering van de kennisoverdracht kan overgaan. Twee clusters van barrières kunnen echter de initiatie van een dergelijke inspanning in de weg staan: (1) *bewustzijnsbarrières* en (2) *belangstellingsbarrières*. De bewustzijnsbarrières leiden tot een passieve afwijzing van de initiatie van een kennisuitwisselingsinspanning door onwetendheid van de betrokken partijen met betrekking tot de mogelijkheden van uitwisseling. Deze onwetendheid kan bijvoorbeeld het gevolg zijn van de onarticuleerbare aard van kennis, de afwezigheid van informatie met betrekking tot de positie van kennis, het bewust achterhouden van kennis door de kennisdrager en de cognitieve beperktheid van personen om toepassingsmogelijkheden te onderscheiden van kennis die te ver af staat van zijn of haar huidige kennis. De belangstellingsbarrières kunnen liggen in de perceptie dat de baten van de kennisoverdacht in eerste instantie niet lijken op te wegen tegen de kosten of in persoonlijke bezwaren bij de betrokken partijen die de belangstelling om samen te werken doen afnemen. Persoonlijke bezwaren kunnen bijvoorbeeld gelegen zijn in het ontbreken van een beloning voor de kennisdrager, een aanzienlijke mate van interne concurrentie voor

kennisontwikkelingsbudgetten, de angst om een kennisvoordeel en daarmee organisationele invloed te verliezen en een behoefte om alles bij het oude te laten.

Onoverbrugbaarheid van de bewustzijns- en belangstellingsbarrières leidt tot een aktieve of passieve afwijzing van een kennisuitwisselingsinitiatief. Er komt geen kennisoverdrachtsrelatie tot stand tussen de betrokken concernonderdelen indien deze barrières niet te beslechten zijn door één van de betrokken partijen (of beiden). De stimulerende verantwoordelijkheid van het topmanagement ligt daarom in het opheffen van de blokkerende werking van deze barrières of deze te reduceren tot een overkoombaar niveau. In Hoofstuk 4 worden in dit opzicht de volgende twee proposities geponeerd op basis van de geïdentificeerde bewustzijns- en belangstellingsbarrières:

Propositie 1: *De kans op de initiatie van een intra-organisationeel kennisuitwisselingsprojekt neemt toe indien er een managementsysteem aanwezig is dat werknemers bewust maakt van intra-organisationele kennisuitwisselingsmogelijkheden.*

Propositie 2: *De kans op de initiatie van een intra-organisationeel kennisuitwisselingsprojekt neemt toe indien er een managementsysteem aanwezig is dat de persoonlijke belangstelling van de werknemers laat toenemen betreffende betrokkenheid in het benutten van intra-organisationele kennisuitwisselingsmogelijkheden.*

Nadat de beslissingsfase van het kennisuitwisselingsproces succesvol is doorlopen, staat men voor de verantwoordelijkheid de kennisoverdracht effectief en efficiënt ten uitvoer te brengen. De uitvoeringsfase moet er op gericht zijn, zoals beschreven in hoofdstuk 5, het waardepotentieel van een kennisoverdrachtsprojekt ten volle te benutten. De uitvoering van de kennisoverdracht wordt echter gehinderd door twee clusters van barrières: (1) de *complexiteitsbarrières* en (2) de *mediabarrières*. De complexiteitsbarrières vergroten de complexiteit van de kennisoverdracht van kennisdrager naar kennisvrager. De complexiteitsbarrières zijn sterk situatie-afhankelijk en omvatten faktoren als articuleerbaarheid en dubbelzinnigheid van de kennis, de aanwezigheid van een uniform begrippenkader, de culturele verschillen tussen kennisgever en kennisnemer en de aanwezige motivatie van de betrokken partijen. De mediabarrières beperken het vermogen van de betrokken partijen een effectieve en efficiënte afstemming te bereiken tussen de complexiteit van de kennisuitwisselingssituatie en het benodigde kennisuitwisselingsmedium. De mediabarrières zijn afhankelijk van aanwezige kennisuitwisselingsvaardigheden en beschikbare middelen (managementtijd, communicatie-instrumenten).

Complexiteits- en mediabarrières kunnen een succesvolle kennisoverdracht in de weg staan doordat een slechte afstemming tussen de complexiteit van de kennisuitwisselingssituatie en het gehanteerde kennisoverdrachtsmedium af doet aan de effectiviteit of efficiëntie van de

kennisuitwisseling. De faciliterende verantwoordelijkheid van het topmanagement ligt daarom in het opheffen van de hinderende werking van deze barrières of deze te reduceren tot een overkoombaar niveau. In hoofdstuk 5 worden in dit opzicht de volgende twee proposities geponeerd op basis van de geïdentificeerde complexiteits- en mediabarrières:

Propositie 3: *De kans op een succesvolle uitvoering van een intra-organisationeel kennisuitwisselingsprojekt neemt toe indien er een managementsysteem aanwezig is dat een complexiteit reducerende werking heeft op de kennisuitwisselingssituatie.*

Propositie 4: *De kans op een succesvolle uitvoering van een intra-organisationeel kennisuitwisselingsprojekt neemt toe indien er een managementsysteem aanwezig is dat de mogelijkheden vergroot om de "rijkheid" van het medium aan te passen aan de complexiteit van de intra-organisationele kennisuitwisselingssituatie.*

In het belang van een succesvolle initiatie en uitvoering van kennisuitwisselingsprojekten, pleiten de vier voorgaande proposities voor de vorming van respectievelijk een bewustzijns-, belangstellings-, complexiteitsreductie- en mediamanagementsysteem. Deze systemen zijn gericht op het verlagen of wegnemen van de blokkerende en hinderende werking van de barrières in het proces van intra-organisationele kennisuitwisseling om op deze manier de initiatie en uitvoering van kennisuitwisselingsprojekten in alle lagen van de organisationele hiërarchie te stimuleren en te faciliteren. Als theoretische concepties zijn deze managementsystemen echter niet observeerbaar in praktische situaties. De vier voorgestelde managementsystemen zijn daarom uitgewerkt in afzonderlijke en praktisch te hanteren managementinstrumenten. De instrumenten worden uitgebreid beschreven in de betrokken hoofdstukken en functioneren als verbinding tussen theorie en praktijk.

HET EMPIRISCH CASE-STUDIE ONDERZOEK

Het empirisch onderzoek heeft zich gericht op de verzameling van illustraties met betrekking tot het managen van intra-organisationele kennisuitwisseling binnen een drietal multinationale ondernemingen. Er is daarbij gebruik gemaakt van de case-studie. Case-studies doen recht aan de subtiliteit en veelzijdigheid van de empirische werkelijkheid en zijn daarom bijzonder geschikt voor onderzoek van een ongestructureerd probleem waarbij de grenzen tussen het probleem en haar omgeving nog niet sterk zijn beschreven en waarbij veel aanwezige invloedsrelaties nog niet zijn bepaald. In plaats van de blik sterk te reduceren door van een sterk afgebakende voorspelling uit te gaan, schept de case-studie met haar voornamelijk kwalitatieve onderzoeksresultaten de ruimte voor verdere interpretatie van de relevante

variabelen. Een case-studie heeft evenwel als beperking dat de uitkomsten vaak erg algemeen van karakter zijn en de populatie vaak te beperkt is om uitspraken te doen over causale verbanden.

Het holistisch karakter van de case-studie dwingt de onderzoeker een degelijke en goed uitgewerkte onderzoeksmethodologie te ontwikkelen die sturing geeft aan de uitvoering en beschrijving van het onderzoek. Hierbij dient aandacht te worden besteed, zoals uitgewerkt in hoofdstuk 6, aan de operationalisatie van de theoretisch afgeleide concepties, de keuze van het aantal ondernemingen waar de case-studie zal worden uitgevoerd, de selectie van de ondernemingen en de toegepaste dataverzamelingsmethoden. In het onderhavige onderzoek is gekozen voor een vergelijkende case-studie waarbij de ondernemingen zijn geselecteerd op basis van de onderlinge verschillen betreffende de kennisomgeving, de concernstrategie en de bestuurlijke erfenis. De uiteenlopende aard van de betrokken ondernemingen moest leiden tot een grote diversiteit in het empirisch materiaal betreffende ondernemingspecifieke kennisuitwisselingsbarrières en managementinstrumenten. De onderzoeksgegevens zijn op een systematische manier verzameld met behulp van interviews en documentenanalyse en vervolgens gestructureerd aan de hand van de vier determinanten van het vereiste en werkelijke niveau van intra-organisationele kennisuitwisseling. Iedere case-beschrijving sluit af met een evaluatie van de vormgeving en effectiviteit van de vier managementsystemen ten aanzien van intra-organisationele kennisuitwisseling.

CASE-STUDIE #1: UNILEVER

Unilever (hoofdstuk 7) is een Engels-Nederlands concern dat zich concentreert op consumentengoederen zoals voeding, cosmetica en wasmiddelen, bedrijfsaktiviteiten heeft in meer dan 80 landen en behoort tot de twintig grootste bedrijven ter wereld. Historisch gezien legt Unilever een grote nadruk op het afstemmen van operaties op de lokale marktomstandigheden in haar streven naar differentiatie en merkloyaliteit. Deze concurrentiestrategie werd vele jaren ondersteund door een sterk gedecentraliseerde ondernemingsstructuur die een grote autonomie en beslissingsruimte toekende aan het nationale management. Sinds enkele jaren staat Unilever echter onder toenemende druk door internationale concurrentieverhoudingen om steeds sneller te innoveren terwijl tegelijkertijd gestreefd dient te worden naar een concurrerende kostenstructuur. De decentraal opererende en internationaal verspreide Unilever-bedrijven worden gedwongen om hun krachten te bundelen en samen te werken in het algemeen belang. Het *corporate center* is zich ervan bewust dat het haar betrokkenheid hierbij dient te beperken tot een richtinggevende, stimulerende en faciliterende verantwoordelijkheid.

De Unilever-case laat duidelijk zien hoe een organisatie kan worstelen met haar bestuurlijke erfenis in het streven kennis toegankelijk en produktief te maken. De grote mate van zelfstandigheid die de concernonderdelen jarenlang hebben genoten heeft geresulteerd in de institutionalisatie van een aantal moeizaam overbrugbare barrières zoals niet overeenkomstige

produktiesystemen, sterk variërende informatiestructuren en een relatief hoge acceptatieweerstand. In de organisatie van Unilever is echter een breed scala van managementinstrumenten terug te vinden die het proces van intra-organisationele kennisuitwisseling stimuleren en faciliteren. Vijf van deze managementinstrumenten worden beschreven teneinde de lezer een beter inzicht te verschaffen in de voor- en nadelen van een bepaalde oplossing en inhoud te geven aan de in het theoretisch deel geformuleerde proposities.

CASE-STUDIE #2: CANON EUROPE NV

Canon (hoofdstuk 8) is een Japanse onderneming gespecialiseerd in de ontwikkeling en produktie van technologisch hoogwaardige produkten zoals kopiëermachines, printers en fototoestellen. De technologisch hoogwaardige kennis en de vaardigheid om die voortdurend te vernieuwen worden vaak aangehaald als de basis van Canon's succes in de afgelopen decennia. Kennisuitwisselingsinspanningen worden in toom gehouden doordat de hoogwaardige vakkennis wordt ontwikkeld, toegepast en vastgehouden in (of dicht in de buurt van) het thuisland Japan en te gelde wordt gemaakt door een intensieve exportstrategie en een succesvolle verkoop van patenten. Een grote zorg van Canon is echter dat veel van haar produkten zich in de volwassenheidsfase van de produktlevenscyclus bevinden. Een nieuwe generatie van produktconcepten dient te worden ontwikkeld voor een consument die regionaal gezien steeds sterker gaat verschillen en vraagt om een produkt dat volledig is afgestemd op zijn of haar specifieke behoeften. Canon wordt voor het eerst in haar bestaan gedwongen een produktieve kruisbestuiving te realiseren tussen de gecentraliseerde technologische vakkennis en de decentraal aanwezige marktkennis, een uitdaging van formaat.

De case-beschrijving van Canon Europe NV illustreert de ervaringen van een organisatie die wordt gedwongen om ook buiten de eigen thuismarkt een kruisbestuiving te realiseren tussen de aanwezige vak- en marktkennis. Het managen van intra-organisationele kennisstromen is daardoor van toenemend belang voor Canon, maar wordt sterk gehinderd en gecompliceerd door verschillende barrières zoals het gebrek aan ervaring met intra-organisationele samenwerking en de drang naar autonomie bij de concernonderdelen. De case-beschrijving presenteert verschillende managementinstrumenten die voornamelijk de marktkennis beter toegankelijk en overdraagbaar moeten maken.

CASE-STUDIE #3: ITT WORLD DIRECTORIES, INC.

ITT World Directories, Inc. (hoofdstuk 9) is een Amerikaans concern bestaande uit acht geografisch verspreide ondernemingen dat zich concentreert op het uitgeven van gerubriceerde bedrijfsinformatie (Gouden Gids produkten). ITT heeft gedurende vele jaren bijzonder hoge netto winstmarges behaald met deze bedrijfsaktiviteit op basis van exclusieve en van overheidswege beschermde contracten met locale telefoonmaatschappijen. De concernleiding

zette de concernonderdelen jaarlijks onder zware druk om de winstmarges verder te vergroten en het volledige winstpotentieel uit de individuele eenheden te persen. Echter, in het begin van de jaren negentig werden de exclusieve contracten en daarmee de kunstmatig gecreëerde monopoliesituaties niet langer rechtsgeldig geacht op grond van Europese regelgeving. De Europese Commissie was van mening dat de exclusieve contracten de concurrentie onnodig beperkten en daarom dienden deze overeenkomsten op korte termijn te worden beëindigd. ITT World Directories werd aldus gedwongen een organisatie neer te zetten die de vaardigheid moest bezitten om op een flexibele en effectieve manier te reageren op een markt die werd betreden door nieuwe concurrenten. De concernonderdelen werden na jarenlang tegenover elkaar te zijn uitgespeeld door het corporate center gedwongen samen te werken en kennis uit te wisselen.

De ITT World Directories, Inc. case preseneert een beschrijving van een veranderingsproces gedurende een periode van twee jaar. In tegenstelling tot de twee voorgaande case-beschrijvingen, worden in de ITT case de verschillende stappen besproken die de concernleiding van deze onderneming heeft gezet in de poging een netwerk van onderling afhankelijke bedrijfseenheden te creëren en het proces van intra-organistionele kennisuitwisseling te stimuleren en te faciliteren. Sterk geremd door het diepgewortelde onderling wantrouwen tussen de concernonderdelen en het hoofdkwartier, investeert ITT World Directories, Inc. in de creatie van een meer geïntegreerde Europese organisatie die door de bundeling van krachten in staat moet zijn de concurrentie met sterke internationale rivalen in de toekomst aan te gaan.

CONCLUSIES

Het laaste hoofdstuk behandelt de conclusies zoals deze zijn voortgekomen uit de confrontatie tussen de theorie en praktische realiteit betreffende het managen van kennisuitwisseling binnen een concernverband. Drie van deze conclusies zullen hieronder kort worden toegelicht. Ten eerste onderschrijft het empirisch onderzoek de theoretisch afgeleide veronderstelling dat het belang van intra-organisationele kennisuitwisseling sterk toeneemt indien een onderneming besluit (al dan niet gedwongen) tot het verwezenlijken van een effectieve kruisbestuiving tussen vak- en marktkennis. Indien deze integratie een kritieke succesfaktor wordt in de concurrentiestrategie van de concernonderdelen dan moet een onderneming om redenen van effectiviteit en efficiëntie één van de kennisvormen laten stromen. Ofwel men decentraliseert de onderzoeks-, ontwikkelings- en produktieaktiviteiten en stimuleert en faciliteert de inter-organisationele uitwisseling van vakkennis (zie Unilever), ofwel men concentreert een groot deel van deze primaire bedrijfsaktiviteiten en stimuleert en faciliteert de overdracht van marktkennis (zie Canon Europe NV).

Ten tweede hebben wij kunnen constateren dat de bestuurlijke erfenis van een onderneming meer dan gemiddelde aandacht vraagt in het managen van intra-organisationele

kennisuitwisseling. Unilever, Canon Europe NV en ITT World Directories, Inc. hebben alle drie traditioneel een grote mate van onafhankelijk gegeven aan hun operationele bedrijfseenheden in Europa. Deze vrijheid heeft geleid tot een grote mate van interne differentiatie tussen de concernonderdelen in termen van bedrijfsvisies, bedrijfsprocessen en bedrijfstaal. Bovendien heeft het ontbreken van een integratiestrategie geleid tot een grote nadruk op de regio- of land-specifieke verschillen terwijl de overeenkomsten worden genegeerd. Unilever, Canon Europe NV en ITT World Directories, Inc. tonen in dit verband grote overeenkomsten. Het kennisuitwisselingsproces in alle drie de case-ondernemingen wordt sterk gehinderd door deze barrières die door haar verwevenheid met de organisatie erg moeilijk zijn weg te nemen of te reduceren.

Tenslotte tonen de cases aan dat het managen van kennisuitwisseling binnen het concernverband een onderbelicht vraagstuk is in veel ondernemingen. Het blijkt dat de managementbenadering ten aanzien van intra-organisationele kennisuitwisseling vaak wordt gedomineerd door een meer dan evenredige aandacht voor de stimulerende en faciliterende werking van geavanceerde informatie- en telecommunicatietechnologie terwijl de "zachtere" managementinstrumenten slechts incidenteel en tevens vaak toevalligerwijs aandacht krijgen. Een belangrijke bevinding in dit verband was dat het managen van intra-organisationele kennisuitwisseling vraagt om het managen van de door de concernonderdelen gehanteerde definities en begrippen. Elk concernonderdeel heeft de neiging zijn eigen definities en informatiestructuren te ontwikkelen. Zonder overeenstemming op dit gebied binnen het concernverband wordt communicatie en daarmee kennisoverdracht onmogelijk. Het topmanagement zal daarom zorgvuldig inhoud moeten geven aan de vorming van een door alle concernonderdelen geaccepteerde en gehanteerde concerntaal.

Samenvattend blijkt de belangrijkste bijdrage van dit onderzoek te liggen in het strategische evenwichtsmodel tussen het vereiste en werkelijke niveau van intra-organisationele kennisuitwisseling, de classificatie vanuit managementperspectief van een grote variëteit aan barrières en het theoretisch afgeleide raamwerk met betrekking tot het managen van het onderhavige proces binnen de context van een multinationale onderneming. Het raamwerk integreert een viertal proposities betreffende de managementsystemen die het proces van intra-organisationele kennisuitwisseling binnen een concernverband kunnen stimuleren en faciliteren. Het integratieve raamwerk werd op een succesvolle wijze toegepast voor het structureren en bestuderen van de problemen rond het proces van intra-organisationele kennisuitwisseling in de organisaties van Unilever, Canon Europe NV en ITT World Directories, Inc. De illustratieve maar diepgaande case-beschrijvingen leveren een referentiekader waaraan theoretische concepties en praktische ervaringen kunnen worden gespiegeld.

Curriculum Vitae

Peter Boone (Vlissingen, 11 October 1970) studied business administration from 1989 till 1993 at the Erasmus University Rotterdam, specializing in strategic management. His Master's Thesis "*Coordination and Integration Strategy - Why do Large Multi-Unit Firms exist?*" won the Hewlett-Packard Strategy Prize 1993 as an outstanding Master's Thesis in the field of business strategy. From 1993 till the end of 1996 he held a position as a research associate at the Department of Strategic Management and Business Environment, Rotterdam School of Management, at the same university where he graduated. Next to his study and position as a research associate, Peter Boone worked on a part-time basis for ITT World Directories NL BV as Manager New Business Development from 1992 till 1996. From 1997 onwards he works for the Foods Strategy Development Group of Unilever.

Stellingen

behorende bij het proefschrift

Managing Intracorporate Knowledge Sharing

Peter F. Boone

Erasmus Universiteit Rotterdam
5 juni 1997

I.

Voor de toegevoegde waarde van kennisuitwisseling in bedrijven is het irrelevant of deze kennis in filosofische termen ook als kennis kan worden aangemerkt.

II.

In hun rol van initiërende uitvoerder dienen de concernonderdelen van een multinationale onderneming rekening te houden met vier barrières die succesvolle intra-organisationele kennisuitwisseling in de weg staan.

III.

In haar rol van stimulerende facilitator dient het topmanagement van een multinationale onderneming een viertal managementsystemen te implementeren die succesvolle intra-organisationele kennisuitwisseling ondersteunen.

IV.

De meest waardevolle organisationele kennis wordt in de regel het minst als dusdanig onderscheiden.

V.

"Mensen zijn geneigd constructies steeds ingewikkelder te maken" (dr. ir. Walt de Heer, NRC Handelsblad, 31 augustus 1996). De produktiviteit van een probleemgerichte onderzoeker is afhankelijk van het vermogen effectief weerstand te bieden tegen deze geneigdheid.

VI.

Een vergaande mate van specialisatie op onderzoeksterreinen binnen het vakgebied van strategisch management is effectief indien de differentiatie in de kerndefinities de vereiste integratie niet in de weg staat.

VII.

Menig topmanager heeft zijn persoonlijke afkeer van een sterk gereduceerde ondernemingsomvang niet laten beïnvloeden door de frequente verschuivingen in de theoretische inzichten aangaande concernstrategie.

VIII.

De Europese Unie mist het vermogen om adequaat op internationale ontwikkelingen te reageren, zolang het tempo waarin de "karavaan" zich voortbeweegt wordt bepaald door de langzaamste deelnemer.

IX.

Het feit dat massale vechtpartijen worden gearrangeerd via nieuwe media, zoals Internet, laat zien dat de huidige technologische vooruitgang op communicatiegebied niet automatisch gepaard gaat met een toename van de welvaart.

X.

Het ontbreken van een bedrijfskundig "kennisreservaat" maakt het sociale leven van veel bedrijfskundige onderzoekers uiterst vermoeiend.