The impact of culture on the innovative strength of nations

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The Impact of Culture on the Innovative Strength of Nations

De invloed van cultuur op de innovatieve kracht van landen

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Preface

This is an experience-based theoretical reflection on bread and butter issues of daily business practices. I am trying to understand how a more systematic reflection and a more rigorous academic approach could help a man and woman doing business "out there". My interest in inventiveness has been born out of a day to day business experience of different approaches to the same business problem in different locations in and outside Europe. It did not matter much if the national state borders were close to my own country (as was the case with Germany) or further (as was the case with Portugal). In both cases I was taking for granted my Dutch habits and expectations and in both cases I was surprised that my partners did not share them. Generally speaking, pursuing my career in industry, I was usually responsible for the initiation and the implementation of one or another innovation policy. This means that I had personally experienced the influence of different aspects of the national culture upon my foreign partners' thinking about inventive measures. Needless to say, national cultural influences did not stand alone. I tried to account for them within the context of an organizational culture and organizational strategy, which always struck me as at least equally important success factors as far as trying to push up the innovative power went.

In reflecting critically on my past experiences I was fortunate to have worked internationally for more than 25 years. Thus I could collect observations and satisfy my special interest in the cultures of countries that I have visited and where I have lived and worked for more than a quarter of a century. I have travelled and worked in the Middle East, in West-Africa, and within the European Union - in the UK, Germany and Greece. My experience with cross-cultural differences in daily attitudes increased when I had a chance to work and live with my family for four years in Portugal. To be receptive to other cultures and to develop empathy demands a lot of us and puts an additional pressure on our knowledge, which has to be revised more frequently than is usually the case and on a search for more insight into differences we note. Curiosity, adaptability and flexibility and wanting to learn from people belonging to different cultures were, as I have found the hard way, the indispensable conditions to feel more confident in contacts with people belonging to different cultures. Curiosity, adaptability and flexibility made it possible for me – I hope - to fully benefit

from learning the positive, helpful, unexpected aspects of foreign cultures. My reflection has been objectified – but it is still based on an academic, which means inter-subjectively negotiated "translation" of my unique, personal experience into an academically acceptable discourse.

My insights were born as a response to disturbing incidents, which I could not easily talk away. Let me mention a few incidents selected among many more which I had to face in my professional career:

During a first meeting with our German agents representing my company in the marketing and sales of products in Germany, the following problem appeared: I had just suggested to start a brainstorm session together. My intention was to discuss the possibilities for the introduction of new products in the local, German market. The agents had good knowledge of their local, that is German market and I wanted to use their inputs for the stimulating and guiding the innovation process in our Dutch company. I expected that they would appreciate my interest and attention paid to their knowledge and experience. I expected them to feel grateful that their unique knowledge would be used as an input for new innovations. To my surprise, however, they remained silent, did not file for speaking and an embarrassing silence followed. Only after a while one of the assembled agents finally got up to speak. He made it clear that a few minutes of silence after my invitation were deliberate and said that he was surprised by my asking them to participate in the decision making process. Clearly, much more than listening was expected from me. I started to suspect that they regarded me as an expert, a specialist in all innovation processes. They had expected a firm idea about future innovation on my part, and they were certain that I was going to present some ready-made new innovation projects. Apparently these Germans partners of my company didn't appreciate our – Dutch - way of participatory decision-making (which I had taken for granted, as a native in "poldering" models). In any case, it was very uncomfortable situation to them. Could it be related to the expectations generated by a German culture, which influenced their approach to knowledge and its management?

In another company, for which I worked in Portugal, it soon became clear that some people were systematically being promoted despite their average

to poor performance. Others, in spite of performing very well, never earned appreciation and were not considered eligible for a promotion. Both of us, a general manager and I, were puzzled by this and we had decided to do an investigation trying to find the most plausible logical explanation. It appeared that about 500 employees have been recruited from four different large families. Only one family was related to the former owner of the company, and the employees belonging to this family were the first to be promoted. Members of the other families could not expect a smooth career in the company no matter how good their performance was and no matter how loyal they remained to the company and their managers. It also appeared that this preference for a privileged family had worked through a fairly dense network of relationships linking individuals in an informal way but manifesting themselves in their work contexts. Could this informal networking which supplemented and influenced formal structures be related to the Portuguese culture and the vision of organizational reality this culture had influenced?

What I really liked in Portugal was the relaxing atmosphere during meetings. There was a lot of harmony and potential conflicts were avoided. People tended to listen instead of speaking. Very different was my experience during my visits to our sister company in Madrid in Spain. People talked a lot and didn't listen to each other. Dominant types consistently took the word. There was a competitive and rather conflictual atmosphere during meetings which I experienced as very uncomfortable. I wondered if the differences in behavior during meetings could be explained by differences in culture between Portugal and Spain?

When I had been working in Portugal, my functional boss was an American Vice President based in the Netherlands. Upon meeting him in Holland I had decided to make him aware of the research, which I had conducted in order to understand the Portuguese market better. I have devoted a lot of work to an elaborated analysis - which I proudly started to present. Having listened for 15 minutes, my American boss interrupted me. He simply asked me to suggest definite solutions to the problem and to the challenges at hand. I responded by explaining that I wanted to discuss possible answers with him. He was furious. Mr. Moonen, he said I am not interested in analyses, what I want to hear from

you are solutions. I returned quite disappointed to Portugal wondering what I did wrong. Could I relate my failure to engage my boss in a discussion of possible solutions to differences in cultural values influencing approaches to work-floor situations the US and Holland?

Not only work life situations made me sometimes feel uncomfortable. I have also noticed inexplicable events in daily life. During one of the regular visits to a supermarket in Portugal the following happened. The long line of clients meant that the cashier was very busy at the cash desk. There was a long queue of about 10 people - and all wanted to pay for their shopping and leave. The cashier was talking to one of the customers of the supermarket – the one she seemed to know well. One spoke about all kinds of personal matters. The conversation lasted for more than 5 minutes. I observed the rest of the waiting customers queuing up for the cash desk. I noticed that especially the foreigners, the Dutch and the German customers were annoyed with the prolonged conversation of the cashier with one of the customers. Their irritation became more visible when the cashier started another discussion with yet another Portuguese client in the queue. The Portuguese customers, however, seemed to consider all these impediments and delays normal and waited patiently for their turn. Apparently either they had plenty of time or a few minutes more waiting for cash desk wasn't a problem at all for them. This phenomenon was not an isolated event, similar events became more common as I looked around. Quite often I could observe long queues patiently waiting for their turn and apparently not minding delays. At the Ministry of Finance, at the municipality, at the first aid clinic in a hospital etc. I wondered what could be the explanation for this?

As far as my more exotic business travels went, I thought that I did quite a lot to race up for differences. For instance, I went well prepared for my first trip to Saudi Arabia and was planning to do good business here. However, it seemed to me that my contact in Jeddah was not particularly interested in the products of our company. I had the impression that he preferred to enjoy extended dinners instead. Business was not discussed at all during the first 4 days of my visit. I became uneasy and noticed that my responses became nervous and anxious. If it went on like this through the next few days - I would

have to fly back to the Netherlands without having achieved any results, with no clear-cut business negotiation at all. How could I break through this and start talking business – this became my primary concern.

Another incident in a long line of my cross-cultural experiences. The company I worked for was about to launch a new product range in the UK. A lot of effort was done to make the introduction successful: Intensive market- and consumer research has been completed, designing innovative products was taken care of and selecting a good agency which would represent the company in the UK was successfully finalized. Just before the introduction of the product range to the UK market, the general manager of the representing agency visited us in the Netherlands. When I discussed with him the product launch, he seemed not to be interested at all. He preferred drinking gin tonics with our general manager instead. He told me he had a great trust in a successful introduction. I was genuinely puzzled: why he didn't show more interest? It was certainly not motivating – not for me nor for my team.

Yet another case was linked to a medium-long distance. I was conducting a consumer research in Athens, Greece. It struck me that the Greeks were clearly critical and negative about their native Greece. I have expected the Greek people to be proud, but they seemed to be quite frustrated and angry and blamed their country for this. Nothing really works in Greece they told me. I wondered why they were so negative and why didn't they put more effort to change things, to make them work?

Doing business in Ivory Coast was very special from the very beginning. People always had an incredibly positive attitude. They were glad when things turned out right but they could also laugh at themselves when they made a big mistake. For a new product launch we did produce a commercial in Abidjan, the capital of the Ivory Coast. Part of the commercial was a contest where people had to run on a track in a stadium. Normally people would run in the right direction but in the spot we had filmed we inadvertently made them run backwards. The employees of the advertising agency all started laughing after they noticed the mistake they had made, despite the fact that they had to re-shoot a new commercial costing around € 40.000. I wondered if I could explain their response. How did it relate to their culture?

These and similar episodes convinced me that knowing more about international cultural differences would help me to find an answer to at least some of the abovementioned questions. They had prompted me to study intercultural issues in depth.

Having traded business career for a teaching position, I was employed at the Amsterdam University of Applied Sciences as a senior university lecturer and lead the international teaching module “Creating food concepts in Europe”. Within this module I provided the lectures and tutorials in Intercultural management, business ethics, International marketing, Innovation Management and International Business Planning. Here, too, I noticed big differences in the approach to innovation projects between students from different European countries. The cultural background seemed to play a major role in generating these differences. Noticing such differences challenged me to examine in depth the influences of national culture and leadership style on the innovative strength of nations. This interest made me pay more systematic attention in the initiation, management and implementation of innovation projects in European countries.

Have I succeeded in adding a modest contribution to the growing knowledge, which might be useful for managers working in the area of Intercultural management? I have decided to pursue an in-depth study, starting with recent cross-cultural competence theories and checking them against the background of innovation policies and cases. The growing internationalization in higher education and the increasing exchange of teachers within academic and higher education in Europe offered me a special perspective and a chance to observe the cross-national differences in my own work context.

The Dutch Food industry, as all other industries within the EU, operates within an increasingly international context. Knowledge of and insight into international cultures and the ability to apply this insight are a prerequisite for being able to undertake and innovate successfully abroad.

Intercultural management, innovation and international marketing play an important role here. Good cooperation with companies and individuals should lead to identify and explore, exploit and implement innovative concepts. Implementing innovative concepts requires even more knowledge, insight and

empathy – especially when faced with other cultures and different influences upon our expectations and behaviors. I hope that my PhD research fits in seamlessly with this attempt. I also hope that my insights, checked against real-life cases, will be directly applicable in my educational activities, when I face the class and start teaching.

For the smooth functioning, for the responsible practice of international business, one needs a subtle competence in navigating between cultural influences, one needs a good understanding of the relationship between the culture of a country and the innovative strength of individuals, companies and institutions. In which countries more direct approaches are suitable for successful implementation of innovations? What are the strengths and what are obstacles created by national and subnational cultural influences on a road to a successful innovation policy in a given context?

I hope to be able to shed some light on how to respond to differences in organizational initiation and institutional management of innovation projects. I also hope to be able to contribute my insights towards an answer to a very important question for managers in a globalized environment. Which interventions on organizational, group and individual level are important for innovation policies? Can we speak of an innovative strength of nations, and if so, which differences in the levels of innovation can be attributed to values and influences exercised on business practices by national cultures?

Introduction

The influence of nationally managed culture upon state managed activities is expected to manifest itself in comparative levels of innovation measured on a nation-state level. Measurement of the outcomes of state-wide projects, for instance organization of research, on a state level is justified by the tradition of running global statistics with the tacit assumption that nation-state is the platform for coordinating cultural and economic policies. This is an oversimplification in contemporary world, but this is how data bases are still being collected. Data bases follow nation-states in international statistics. Spain can be compared to Sweden, The Netherlands to Portugal, but Catalonia is harder to compare to, say, the Oxbridge belt. The explanation of different effects of the influence of national culture upon research and implementation activities is based on a reconstruction of relationships between several cultural dimensions and values and their joint impact upon economic activities manifested, for instance, by the innovativeness level of cultures. Despite the vibrant research on organizational creativity and innovativeness, most studies have been conducted in a small number of singular national contexts and most researchers have either ignored the influence of societal national culture or paid a lip service to it. Both ignoring the influences of national culture and paying lip service resulted in decline of research interest on cultural determinants of economic policies and impacts upon innovativeness. This decline of research interest is best illustrated by the fact that the number of quotations from Hofstede's seminal works declined dramatically over the past decade. This decline of interest in Hofstede is indicative of a failure to investigate cultural determinants of economic policies. To understand this decline papers on creativity and innovative strength published in two leading research journals have been examined: namely in Journal of Applied Psychology and Academy of Management Journal. One more bias has been noted, namely the anchoring of most studies in the USA and other affluent nation-states belonging to "the West" (45% of the studies were conducted in the United States and 25% in other Western countries). China was the only sizeable non-Western culture studied, accounting for 20% of the articles. However, the vast majority of these research studies completed in China was guided by the same theoretical concepts and theories of cultural determinants of behavior, which had been borrowed from the West, without any concern for the specific influence of Chinese culture and

the peculiarities of the Chinese recent history, in which the relations between the US, Chang Kai Shek and Mao Dze Dong were friendly until the split between communists and nationalists led to the Korean hot/cold wars by proxy.

The abovementioned Chinese case clearly indicates the need to add a few words about the concept of culture assumed in the present study. If we begin with the distinction introduced by Klamer (2016), culture is most broadly understood in the anthropological meaning of the term, where it is a group specific set of values, identities, symbols, artefacts and "stories" (Klamer's C1 concept of culture). This is the concept which is closest to what Hofstede (2001, 2010) had introduced in his theory of the dimensions of culture. The C2 concept of culture distinguished by Klamer, namely the one, in which culture stands for the civilization, a totality of accumulated achievements in a certain region, is too broad and does not allow for tracing the influences of cultural values and beliefs upon economic projects and their accumulated achievements. The third concept distinguished by Klamer, namely C3, where culture stands for arts, design architecture and certain crafts, is clearly too narrow for our research purposes.

Culture – as we assume following the cross-cultural research reports - has an impact upon innovative strength of individuals, teams of individuals, networks of individuals and upon organizations and their networks. Managers and leaders, as well as people they work with do not come from nowhere – they all are part of nationally socialized institutions, organizations and interactions. In short, they "belong" to definite, concrete societies and assume different identities formed and articulated within available cultural repertories. Does a culture which shows a high openness to change (as opposed to conservatism) and favours Intellectual autonomy (as opposed to the obedience to authority) has a strong correlation with innovative strength of a society in which it is dominant? Does this openness to change impact knowledge & technology outputs registered in the rate of technological innovation and Creative Outputs registered in patents, licenses and Nobel prizes? And what about a more traditional and conservative culture? Does a predominantly individualistic or a mainly collectivistic culture lead to more Innovative strength or does it reduce relative innovative power of a society? To what extent have a High Power Distance and a High Uncertainty

Avoidance affected innovation (if at all)? Does a high score on the masculinity index play a role here (for instance in damaging cooperation to the benefit of competition, or damaging competition to favor cooperation)?

The national cultural "package" of values influences behavior of managers and leaders especially when institutional policies, mainly coordinated at a national state level, trigger change processes within organizations. We know it, but researchers remain ambiguous about the mutability of the package in question and about the exact nature of influences. National culture can possibly have a predictable influence on how managers and leaders organize, plan and manage the initiation and implementation of innovation (and this is exactly what most of the research literature is all about). But researchers are reluctant to announce sharp verdicts. Does only a stimulating inspiring, empowering and innovative management style lead to innovative strength? Maybe. But would a strict, autocratic and competing management style encourage innovation too, by cutting down dead wood and economizing on organizational slack? Would a flexible but non-inspirational leader have a positive or negative effect on innovative strength?

We need to determine sociological and cultural determinants of individual and group behavior, which may have an observable influence on the innovation process. Therefore culture-dependent relations in innovation should be specified and emphasized (Tiessen, 1997). Granovetter (1985) claims that social and cultural values may affect the way markets function. Some cultures show more entrepreneurship and innovation than others (Lee and Peterson, 2000). Shane (1993) provides evidence of the mechanism that links the cultural characteristics of a country and its innovation rate. Westwood and Low (2003) claim that culture directly influences the initiation and implementation of innovation. According to Shane (1993), specific social changes must occur to increase the innovation rates of a country (these changes are linked to the triangle of education, creativity and implementation) which should be coordinated as parts of a more general learning process. Williams and McGuire (2010), using a structural equation model on a sample of 63 countries, found that national culture's character does influence the same countries' economic creativity and international market success. It is important to understand

the national cultural factors that could influence organizational choices of companies and their innovation performance – especially if we want our managerial choices to be better informed in future.

Some links are easy to predict. National culture influences organizational culture, because individuals are socialized in families, schools and working organizations. Some are less easily decoded: there are many different ways in which national culture can filter its influences to choices about structure of interinstitutional cooperation and leadership and management style within professional business organizations. My major question is how to detect and assess the sense-making activities of managers in order to understand the impact of cultural values on organizational culture and on leadership characteristics. If we understand sense-making preferences and their interrelations with choices and networking activities of business managers – we can come closer to explanations of those cultural determinants and values, which are important for competitive advantage of a given national cluster in innovation game.

Cultural difference is an important factor explaining different levels of innovativeness between nations and corporations. However, other factors have also a profound impact, e.g. absolute and comparative economic advantages based on the quantity and quality of production factors. In Porter's book The Competitive Advantage of Nations (1990) these factors have been grouped into human resources (qualification level, cost of labor, commitment etc.), material resources (natural resources, vegetation, space etc.), knowledge resources, capital resources, and infrastructure. They also include factors like quality of research on universities, deregulation of labor markets, and liquidity of national stock markets. These national factors often provide initial advantages, which are subsequently built upon. Each country has its own particular set of factor conditions; hence, in each country those industries may develop more successfully than in other countries for which the particular set of factor conditions is less than optimal. This explains the existence of so-called low-cost-countries (low costs of labor), agricultural countries (large countries with fertile soil), or the start-up culture in the United States (willingness to take risks in a well-developed venture capital market). Porter points out that

these factors are not necessarily nature-made or inherited. They may develop and change. Political initiatives, technological progress or social changes, for instance, may shape national factor conditions more than sheer cultural patterns. These production factors allow (or prevent) countries to compete successfully with foreign markets, a very important accelerator of economic growth of a country. But cultures can evolve as well and cultural revolutions are also possible.

Let us sum up. We assume that creativity and innovation can be compared at the national cultural level, with the comparison based on creative output in well-defined domains, such as technological patenting. Some creative outputs can be attributed to a culture (e.g., overall innovativeness and support for incubators), whereas others can be attributed to firms (e.g., concrete patents obtained or corporate networking). An obvious difference we can notice in cross-cultural comparison of creativity of the individual and at the societal levels is the inequality of a starting point that is - a more general and all-pervasive importance of wealth upon chances for innovative behavior than used to be assumed. Portugal and the Netherlands are comparable, but the latter is much richer than the former. Based on the innovation index, all the cultures ranked within the top twenty positions are economically developed. Felisberto (2013) found that in a sample of seventeen European countries, gross domestic product (GDP) per capita was positively related to an innovation-stimulating culture. The strong salutary effect of wealth as an accelerator imposed on innovation engines is not surprising because creativity and innovation depend on access to resources (Camisón- Zornoza et al. 2004; Damanpour, 1991).

The first chapter provides an overview of Cross-Cultural Analyses of Creativity, Innovation and Entrepreneurship. I will discuss the definitions of creativity and its importance for innovation and entrepreneurship. How could creativity be defined and evaluated differently across different cultural contexts? What is the importance of societal wealth in promoting values and norms in support of creativity, and which norms and values coupled with available wealth are beneficial to innovation? What leadership styles effect creativity, innovation and entrepreneurship? These are the questions, which not only government experts ask on a daily basis.

In the second chapter I will propose a method for deconstructing and better understanding of sense-making activities. We shall develop our deconstruction with a gradual critical review of the book "Why Nations Fail: The Origins of Power, Prosperity and Poverty". This will allow us to trace the key role of culture in the development and reinforcement of the innovation-driven prosperity of nations, which is what we would like to understand and manage better than ever before.

In the third chapter I will use the sense-making reconstruction approach to understand the governance of innovation from a European perspective. Tracing national innovativeness debates will enable us to evaluate different trajectories and choices and we shall be able to elaborate on the social articulation and transmission of knowledge between relevant actors (following Whitley (2010) an perspective, which stops short of referring to sense-making, but lays the groundwork).

The forth chapter deals with the impact of culture on the innovative strength of nations via the construction and maintenance of a sense-making filter. By a comprehensive review of the theories of Hofstede, Schwartz, the Globe, Boisot and Cameron and Quinn we will try to identify and understand the relations of national culture and leadership style to and with innovative strength of nations.

In chapter five the results of a quantitative study of the relations between cultural values, leadership styles characteristics and innovative strength of nations – translated into sense-making filtering – will be presented and evaluated.

In chapter six a conceptual model "The innovation capacity of Society" is presented, the key conclusions are described and directions for future research devoted to sense-making practices and focused on a detection of sense-making filters are put forward and suggested.


1

A Cross-Cultural Analyses of Creativity, Innovation and Entrepreneurship

A Cross-Cultural Analyses of Creativity, Innovation and Entrepreneurship

The objective of this chapter is to review and critically examine cross-cultural analyses of creativity and innovation.

I discuss the construct of creativity from a cross-cultural perspective and then review cross-cultural differences between national approaches to creativity and innovation. I conclude with the impact of leadership on creativity and innovation.

1.1 Creativity, innovation and entrepreneurship

Creativity is typically defined as the generation of Ideas that are both novel and appropriate or useful (Amabile, 1996; Oldham & Cummings, 1996). Creativity is concerned with idea generation, whereas innovation is concerned with the implementation of creative ideas (Janssen, 2000; Kanter, 1983; Scott & Bruce, 1994). As such, creativity is a precursor of both innovation and entrepreneurship. Specifically, innovation involves the implementation of creative ideas. Entrepreneurship refers to the application of creative ideas to new business ventures, which can include the creation of new markets, new products and new services or new firms. Innovation is tightly coupled to change, as organizations use innovation as a tool in order to influence an environment or due to their changing environments (internal and external). The current definition of creativity is widely accepted and there is hardly any controversy surrounding it. Some researchers (Gilson and Madjar, 2011; Madjar, Greenberg and Chen, 2011) have proposed that creative ideas can be either incremental, (i.e., modifications to existing processes) or radical (i.e., significant breakthroughs), with radical ideas occurring much less frequently. Parallel to the incremental/ radical distinction in the creativity literature are the concepts of exploitation and exploration in the innovation literature. Specifically, exploration refers to firm behavior that is characterized by search, discovery, experimentation, risk taking and innovation, whereas exploration involves behavior like refinement, implementation, efficiency, production and selection. Finally, many true entrepreneurial activities and therefore many new businesses may be more likely to involve a more radical type of creative idea

or more explorative innovative behavior. The creation, funding, development and growth of new ventures all require a great deal of creativity. For example, entrepreneurs have to be creative in order to develop a new concept of delivering a service or designing a product, seek venture capital funding and pitch their concepts to potential investors. Entrepreneurs have to engage in these type of processes to discover opportunities and then exploit them. As such creativity is infused throughout the entrepreneurial process.

1.2 Creativity and innovation from a cross-cultural perspective

Viewed from a cross-cultural perspective, however, the definition of creativity is more ambiguous than the literature would suggest. Even within a culture, there are well known cases that illustrate the subjectivity in the evaluation of creativity. Csikszentmihalyi (1990, 1999) provided perhaps the more systematic account of creativity as an intersubjective phenomenon. He argued that creativity cannot be evaluated outside its social context because creativity is not an attribute of individuals but of social systems making judgments about individuals. The intersubjective approach to creativity suggests that creativity may be defined and evaluated differently across different cultural contexts, because domains and fields can vary across different cultures. An example was given by Chan and Chan (1999), who found that Hong Kong Chinese teachers, but not American teachers, regarded “quick in responding” as a creative attribute, whereas American teachers but not Hong Kong Chinese teachers mentioned “self-centered” as a creative attribute. Teachers from these two cultures may differ in their assessment of creativity of students because they use different criteria in ranking behavioral and attitudinal differences.

The framework of individualism-collectivism a particularly useful in explicating cultural differences in conceptualization of creativity as it provides a coherent account of East-West differences in the importance accorded to novelty and appropriateness/ usefulness in defining creativity. In general, people in individualist cultures are motivated to see the self as distinctive and hence to pursue uniqueness and novelty as a way to differentiate themselves from others. On the contrary, people in collectivistic cultures are motivated to contribute to their in-groups and hence target the generation of appropriate

and useful ideas in their creative endeavors (Hofstede et al, 2010; Hempel & Sue-Chan, 2010; Morris & Leung, 2010). Considerable evidence supports the association of individualism with the emphasis on novelty and collectivism with the emphases on appropriateness / usefulness. Rudowitcz and Yue (2000) found that Chinese undergraduates regarded characteristics associated with creative individuals, such as "have original ideas" and innovative" as relatively unimportant. Western societies emphasize novelty, originality and self- expression; Eastern societies view interpretations of existing traditions as creative solutions (Rudowicz, 2003; Pang and Plucker, 2013). Palletz, Peng and Li (2011) proposed that the implicit theories of creativity of East Asians emphasize external themes such as social significance and leadership because of their attention to social context, whereas the implicit theories of Americans emphasize internal aspects of creativity such as intuition and mental capacities because of their orientation toward individualism and dispositionalism.

Hofstede et al. (2010) points out the differences between Short- and Long Term Orientation in trying to explain the stark contrasts between Chinese (or more broadly Asian) and Western attitudes towards business management. In Western, Short Term Oriented, cultures, analytical thinking is more important, a manager, an employee, an innovator or an investor are concerned with possessing the Truth, whereas in Eastern, Long Term Oriented, cultures synthetic thinking is more important in business and life in general. With the results of Western, analytically derived inventions and technologies freely available, Eastern cultures put these technologies into practice after a "filtering", using their own superior synthetic abilities. The West focusses on radical innovations whereas the East is more pragmatic and concerned with sense-making and appropriate solutions which benefit the society as a whole.

Bechtoldt et al. (2010) found that group creativity is driven by a combination of epistemic motivation (motivation to acquire understanding a knowledge) and prosocial motivation. In an individualist culture, the combination of epistemic motivation and prosocial motivation should promote the pursuit of novelty because this dimension is prized in individualist cultures. In contrast, the combination of epistemic motivation and prosocial motivation should lead to the pursuit of appropriateness in collectivist cultures. In an experiment

with university students, it was found that when both epistemic motivation and prosocial motivation were high, Dutch participants showed higher level of originality in a brainstorming task, whereas Korean participants showed higher level of appropriateness. This pattern of results supports the argument that novelty is emphasized in the Dutch culture and appropriateness in the Korean culture.

We conclude that ample evidence supports the argument that individualism is associated with an emphasis on novelty in conceptualizing creativity, whereas collectivism is associated with an emphasis on appropriateness/ usefulness. Ideas high in novelty are seen as more creative in individualist than in collectivist cultures, whereas ideas high in usefulness/ appropriateness are seen more creative in collectivist than in individualist cultures. An important consequence of this difference is that in individualist cultures social norms and values promote uniqueness and distinctiveness in creative endeavors, and individuals are more motivated to pursue radical creativity which tends to maximally distinguish them from other people (Lan & Kaufman, 2012). The creative pursuit in collectivist cultures tends to be incremental because of lower emphasis on novelty and uniqueness.

Other cultural dimensions have also been found to relate to the innovativeness of cultures. High power distance, which refers to acceptance of social hierarchy and deference of authority figures (Hofstede et al., 2010) should be negatively related to innovation, because high power distance discourages participation in and contribution to the innovative process by those lower in social hierarchy. Indeed, power distance at a national level correlated negatively with the number of inventions per capita after controlling for GNP per capita (Shane, 1992), the per capita number of trademarks in a nation after controlling for per capita income (Shane, 1993), a nation's score on the Global innovation Index and managers' creativity-promoting values (Hoegl, Parboteeah, and Muethel, 2012). It has been argued that bureaucracy reduces creative activity (Hurbig and Dunphy, 1998). In cultures that exhibit less power distance, communication across functional or hierarchical boundaries is more common, this enables to connect different creative ideas and thoughts, which can then lead to unusual combinations and even radical breakthroughs.

Mixed results were found with respect to uncertainty avoidance, which refers to the compliance with well- defined rules and regulations and the avoidance of uncertainty (Hofstede et al., 2010). In theory, high uncertainty avoidance is detrimental to innovation because creative ideas typically involve uncertainty about feasibility and usefulness. Indeed societies characterized by low uncertainty avoidance are associated with stronger promotion of innovative activities (Shane, 1995) and higher entrepreneurial orientation. Controlling for per capita income, Shane (1993) found that lower uncertainty avoidance was associated with higher number of trademarks. However no significant relation was found between uncertainty avoidance and innovation as measured by the per capita number of patents after controlling for GNP per capita (Shane, 1992). Williams and McQuire (2005) showed that uncertainty avoidance has a negative effect on the economic creativity of a country. As innovations are associated with some kind of change and uncertainty, cultures with strong uncertainty avoidance can be more resistant to innovations (Shane, 1993; Waarts and van Everdingen, 2005).

Dealing with Masculinity and Femininity there are some possible influences that have to be taken into account. In feminine societies the focus is on people and a more supportive climate can be found. A warm climate, low conflict, trust and socio-emotional support help employees to cope with the uncertainty related to new ideas (Nakata and Sivakumar, 1996). One could argue that competition amongst employees in more masculine cultures leads to better performance. Standing out is a very important drive to excel. However, in feminine cultures striving for consensus, humanization of work by contact and cooperation, and the important role of intuition in the innovation process might be equally important.

Hoegl et al., (2012) approached the influence of culture from the perspective of national climate of creativity. Drawing from the framework of Amabile (1996), they proposed five dimensions of national climate that promote creative values. One dimension is nation-level material supportiveness, which is related to national wealth. The four remaining dimensions are nation-wide freedom, nation-level positive pressure (dependence on innovation) and negative pressure (performance orientation), and regulatory impediments (government regulatory requirements). The dimension, nation-level

ideological supportiveness was captured by inverse power distance and assertiveness from previous frameworks of cultural dimensions. Hoegl et al. (2012) were interested in whether these nation-level dimensions affected the creativity-promoting values of individual managers. A multilevel analyses of a sample of managers of nineteen European nations showed that perceived freedom and positive pressure were positively related and negative pressure was negatively related to individual creative values. These results suggest that creativity-promoting values are influenced by social factors in addition to cultural dimensions.

To conclude, country-level comparisons show that both institutional and cultural values matter. Societal wealth is critical for innovation and cultural dimensions and ideologies that promote values and norms in support of creativity are beneficial to innovation. What is less clear is how institutional and cultural factors interact in shaping the creative outputs of nations. Is it this interaction of clustered factors and policies, which determine the national creativity potential or why some nations fail while others succeed?

1.3 The effect of cross-culturally competent leadership on creativity, innovation and entrepreneurship

Entrepreneurs need passion and intrinsic motivation for new ventures in order to formulate a strategy and especially to implement it effectively. They deal with emerging problems and this plays an important role in innovation through idea elaboration and idea evaluation. Zang and Barrol (2010) assert that empowerment of employees may influence their entrepreneurial behavior, such as taking risks, dealing with uncertainty, and enhancing innovation. Entrepreneurs need to be effective leaders who can boost their teams' creativity and innovation. Leadership indeed plays an important role here. A supportive

context and a personal factor favoring creativity may reinforce each other and hence have synergetic effects on creativity. According to the componential model of creativity (Amabile, 1996) intrinsic task motivation is one of the most important factors deciding creative performance. Specifically supportive and coaching leadership, empowering leadership, and transformational leadership have been proposed to have an impact on follower creativity via increasing levels of intrinsic motivation. Previous studies have suggested that supportive leaders may increase the intrinsic motivation of followers by providing them with more choices and informative positive performance feedback (Oldham and Cummings, 1996). Zhou's work (2003) based on cognitive evaluation theory (Deci and Ryan, 1985), indicated that controlling supervisor behavior had a negative influence on employee creativity, whereas informational supervisor behavior (e.g. developmental feedback) had positive influence on creativity.

Moreover, Zhang and Barrol (2010) found that empowering leadership had a positive influence on creativity via increasing intrinsic motivation. Here, empowering leadership includes leader behavior such as emphasizing the significance and meaningfulness of the employee's job, providing more autonomy, and encouraging employees to have self-efficacy. Empowered employees are powerful, highly confident and passionately committed to their goals: hence they demonstrate initiative and creativity in fulfilling these goals. Empowerment removes restrictions and boundaries, provides autonomy and encourages employees to realize their potential and initiative. To face entrepreneurial challenges, employees should be aware of their potential and feel free to use their knowledge, skills and creativity while working together. As a result, they might be intrinsically motivated and willing to take entrepreneurial actions. When employees believe that they have the ability to perform challenging tasks successfully, they are more likely to fully explore the activities and retain motivated throughout the process until satisfying ideas are realized. Furthermore, self-determination or autonomy is an important determinant of creativity because increased control over tasks boosts individuals' intrinsic motivation, thus significantly inspiring creativity. Autonomy provides employees with flexibility. Individuals generate the most creative ideas when working in a high task autonomy work environment.

On the other hand, centralization (lack of autonomy and empowerment) is negatively related to organizational innovation. In sum, consistent findings exist for a positive relationship between psychological empowerment (easier to achieve in less centralized organizational settings) and creativity (Amabile, et al., 1996).

The transformational leadership style has also been studied for its effect on creativity (Jung and Avollo, 1999; Shin and Zhou, 2003, 2007). The four dimensions of transformational leadership (i.e., inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration) are likely to boost intrinsic motivation.

Efficacy belief is a key element in motivational mechanisms for creativity. Scott and Bruce (1994) found that supervisors' high expectations for subordinates' innovativeness and high quality leader-member exchange actually led to subordinates' higher innovative behavior by increasing their perception of a climate for innovation. Self-efficacy beliefs have been viewed as one of the main mechanisms for the relationship between leadership and creativity.

Conger (1991) suggests that arousing follower' emotion is an important outcome of inspirational and effective leadership. A more recent study indicated that there is a positive relationship between positive moods (e.g. happiness) and creativity and a negative relationship between negative moods (e.g. fear and anxiety) and creativity (Baas, De Dreu and Nijstad, 2008). In particular, leaders may have significant influence on employees' affective states as emotions and moods on the workplace because they have huge impact on the social lives of their employees at work. Following this logic, we can easily see the affective mechanism by which leadership impacts employee creativity.

First leaders can influence employee creativity by helping their affective states to be oriented toward creative behavior. For instance, the work of George and Zhou (2002) and Zhou and George (2001) showed that employees' negative moods resulting from job dissatisfaction could lead to greater creativity if their affective states were well managed by their leader. This phenomenon results when the leader with a high emotional intelligence who is aware of the emotions of his or her followers enables them to channel these emotions towards

the desired creative processes. In addition it was found that when a leader provided supportive contexts such as maintaining a level of developmental feedback, interactional justice, or trustworthiness, then both positive and negative moods were jointly and positively related to creativity.

Second, positive emotional or mood states created by a leader could lead employees to be more creative in their work. Altwater and Cameli (2009) found that high- quality leader – member exchange led to feelings of energy (i.e., affective states encouraging individuals to pursue creative paths), which in turn increased creativity.

Finally, the emotional intelligence of leaders can help employees have better emotional experiences, allowing for better engagement in cognitive and creative processes (Zhou and George, 2003). Because creative activities are affect-laden, if emotional states are well managed, employees are likely to engage in more creative behavior. In this regard leaders with high emotional intelligence are able to help shape their followers' emotional experience such that engagement in the creative process is enhanced. Here creative processes include identifying problems, questioning existing relationships, formulating ideas and having a discussion with others (Torrance, 1988).

Creativity requires extensive and effortful cognitive processing. Leaders can affect followers' creativity, not only through the motivational and affective mechanisms, but also by facilitating cognitive processes involved in creativity (Reiter-Palmon and Illies, 2004). The important roles that a leader can play in facilitating employees' creative processes are providing access to diverse information, encouraging team members to share information and ideas, creating an environment for their indulgence in creative processes and proactively encouraging them to engage in creative processes.

Leung et al. (2014) reported an interesting interaction effect between innovative climate and autocratic leadership, such that innovative behavior was highest when both innovative climate and autocratic leadership were high. One explanation is that autocratic leadership, in the presence of a strong innovative climate, may motivate subordinates to strive for innovation.

Benevolent leadership is a dimension of paternalistic leadership which is concerned with individual care in both work and non-work domains (Cheng et al. 2004). Wang and Cheng (2010) found that benevolent leadership was positively related to creativity among Chinese employees, especially when creative role identity or job autonomy was high. They suggested that leader benevolence builds trust and provides resources to subordinates, both of which benefit creativity.


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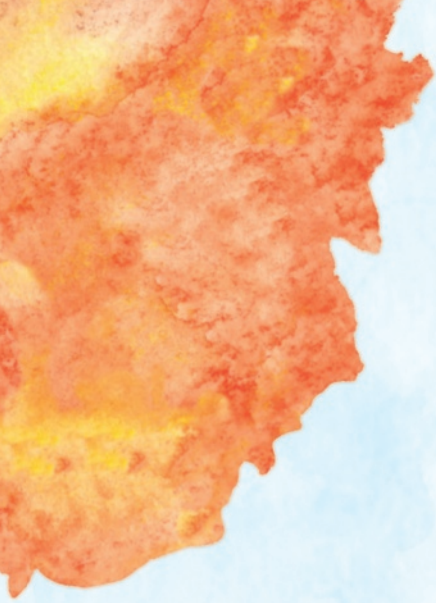


Why Nations Fail: The Origins of Power, Prosperity, and Poverty

Why Nations Fail: The Origins of Power, Prosperity, and Poverty[1]

2.1 What causes nations to fail?

In the framework of the present geopolitical order, nation-states recognized by the United Nations conduct all activities, including economic ones. Their activities can be compared and they often are. One of the questions often asked about their relative success is the ability to stimulate creativity and to exploit it in economic exchanges with the other nation-states.

What causes nations to fail where others succeed? Acemoglu and Robinson (2013) argue that among all factors influencing creativity, innovation and prosperity the political institutions have a determining impact on the establishment and guidance of economic institutions. Basically two types of political institutions can be distinguished: "extractive" institutions in which all power is concentrated in a small group of individuals which exploit the rest of the population to their own benefit and "inclusive" institutions in which power and political rights are much more broadly distributed among the population. They suggest that economic prosperity and growth is not possible in "extractive" political systems, they argue that "inclusiveness" is essential for economic prosperity. To call them "authoritarian" and "democratic" would be a simplification since monopolies can also occur in a free market economy and appeal to the masses can easily degenerate into populism in parliamentary systems. To suggest that economic prosperity and growth are not possible in "extractive" political systems, to argue that "inclusiveness" is essential for economic prosperity is tempting, but ignores the troubled relationship between democracy and market economy (China, Chile under Pinochet). Sense-making processes are increasingly complex and we should study them without prior assumptions about the necessary connection of a parliamentary democracy and free market economy. The economic and industrial policies are generated against the background of cultural values, and they are limited by the

[1]Moonen P.J.J. (2015). Journal of Organizational Change Management, Vol. 28, No. 1, pp. 153-158.

geographical or geopolitical situation (for instance the context of a European Union). What is exactly the role of a dominant framework of the nation? What are the value systems and how do they turn into factors contributing to the prosperity of a country by offering a guidance and supporting collective and individual decision making? However, we should bear in mind that according to the opinion voiced, for instance, by Acemoglu and Robinson the economic and industrial policy, the geographical situation, the culture of the nation and the value systems and natural disasters are not the determinants, which can be easily distinguished and which influence the overall result of economic activities independently of their clustering with the other determinants, for the prosperity of the country.

2.2 Creative destruction and sense making - national impact upon cultural values

Values work through collective and individual decision-making. For any economic growth a minimum of centralized governance is required to provide general public services like education, health care, elderly pensions, security and infra-structure. If these general and basic conditions are being fulfilled - inclusive political institutions will boost technical innovation and entrepreneurship which, in turn, will lead to economic development and prosperity. Extractive political institutions may also lead to economic growth but only in areas where technological development is not crucial to survive as a nation. These institutions block innovation to prevent the distribution of knowledge and development of a country as this may lead to a distribution of power and wealth to the disadvantage of the small group of the power holders. These extractive political systems will ultimately fail when inventions are needed to survive, but threaten the stability of privileges accumulated by the power holders. Acemoglu and Robinson call this “creative destruction” of the system, in order to account for what economists often refer to as open market economy and competition.

Many western experts expect the very fast growing economy of China to break down as the country’s elite is still holding extractive type of political institutions. However is the industrial and economic transformation of China

not an example of a development from an extractive political system to a more inclusive one? Are not entrepreneurship and innovation strongly supported by the central government (and even aided with industrial espionage, Huawei style)? A large majority of Chinese citizens are much better off than 20 years ago. China is not an inclusive democratic country but is this a condition for economic prosperity? Or maybe we should ask the following question; perhaps China is not an inclusive democratic country but it still a very clearly defined cultural civilization. It is the Kingdom of the Middle, China, an old civilization with strong cultural values. Perhaps loyalty to these forms is a pre-condition for a sense of direction, endurance and ultimately economic prosperity? China certainly is working hard to improve the basic public systems. It has also developed a strategy for long term growth. Nevertheless, under the western expert eyes the success of China is seen as temporary and will decline because it is being portrayed as an extractive political system. Infect this strongly centralized economy is a severe competitor of the more liberal capitalist Western economies. Sometimes a strong leader makes the right choices for the development of a country. By contrast to their view on China they implicitly argue that the West will continue to grow because our institutions are inclusive. This is doubtful since at the moment we are in an economic crisis, the "occupy" and "outraged" movements question the participative nature of our democratic institutions, and all the time China's economy is booming. Will the West continue to grow?

In the book Power and Prosperity (Olson, M.,2000) Mancur Olson discusses other examples of nations like Chile, South Korea and Taiwan, all of which strongly developed to successful economies under non-inclusive political institutions. In all of these countries non-democratic political institutions evolved into inclusive institutions. One could raise the question if this development is the cause or the result of the economic success?

Western experts are intrigued and trying to explain these "anomalies", they focus on what happens within these countries. Economic development is a result of inclusive institutions, which allow "creative destruction". They don't discuss absolute and comparative economic advantages based on the quantity and quality of production factors. In Porter's book The Competitive Advantage of

Nations (Porter, 1990) these factors have been grouped into human resources (qualification level, cost of labor, commitment etc.), material resources (natural resources, vegetation, space etc.), knowledge resources, capital resources, and infrastructure. They also include factors like quality of research on universities, deregulation of labor markets, and liquidity of national stock markets. These national factors often provide initial advantages, which are subsequently built upon. Each country has its own particular set of factor conditions; hence, in each country will develop those industries for which the particular set of factor conditions is optimal. This explains the existence of so-called low-cost-countries (low costs of labor), agricultural countries (large countries with fertile soil), or the start-up culture in the United States (well-developed venture capital market). Porter points out that these factors are not necessarily nature-made or inherited. They may develop and change. Political initiatives, technological progress or socio-cultural changes, for instance, may shape national factor conditions. These production factors allow or prevent countries to compete successfully with foreign markets, a very important accelerator of economic growth of a country. An important reason of economical failure of a nation in our globalized world is not being able to compete on an international scale.

One of the reasons western experts fail to grasp the unexpected rise of non-democratic market economies is their excessive focus on nations as culturally distinct units, whereas transnational cooperation has become increasingly important in a number of globally networked activities. Transnational institutions play a very important role here. From the European Union to the North Atlantic Free Trade Association, to the United Nations to multi-national corporations like the WTO, the IMF, the WIPO, the UNCTAD, and the OECD, and NGO's. Transnational institutions are an increasingly significant factor, which have their impact on competition between nations.

That international competition is very important for innovation and economic success is clearly illustrated with the development of Germany. From the nineteenth century until the end of WWII Germany developed strongly under extractive institutions. Nazi Germany was beyond doubt one of the most extractive and violent institutional political orders in history. Yet Germany was also during WWII economically successful (be it by armed robbery) and

highly innovative (guided missiles, jet airplanes). It was mainly due to another extremely extractive country: Russia, that it couldn't expand further. The importance of the competition between states is clearly demonstrated during the Second World War. In the struggle for dominance, both sides were forced to develop new technology that would allow them to compete successfully with their enemy. As a result, the WWII period was extremely fertile in terms of inventions. The growth in the following thirty years of the century primarily involved integrating the advances made during the war into the civilian economy. Nuclear power, synthetic oil and synthetic rubber, computers, jet aircraft and V1 and V2 rockets, radars and containers, all developed during the war. Many other technologies pioneered during the Second World War had an enormous economic impact. Think of the commercial aviation industry and the German rocketry - which was the forerunner of our present GPS system. Two coding and decoding machines stand at the foundation of the modern day computer, namely the Enigma and the Lorentz machines, and both machines date back to Second World War.

In many respects, the extractive Soviet Union picked up in the Cold War where Germany left off at the end of World War II. They were the first to perform spaceflight both manned and unmanned, and never gave up their lead in tank technology. Indeed, one is tempted to point out that Russia did well under extractive communist institutions. These institutions were overturned by a civilian coup that was enabled by a failed military coup, but the resulting inclusive political institutions could not prevent the complete economic ruin of the country. These examples illustrate the major point about power as a counterpart of culture in determining innovative competition of nations - that also under extracted institutions limited technical innovations are possible.

However, the history of Second World War and its aftermath is instructive in other ways as well. The inclusive institutions of the world fell into a deep economic crisis with the Great Depression – it was war with the extractive institutions in Germany, Italy and Japan that brought an end to the depression and the flowering of inventions on which post-war economic success was built. It is only after 1970, with the computer revolution, that we see real post-

world-war II technology become important. Indeed, the fall of the Soviet Union is often attributed to its inability to keep up with the more decentralized economic model needed to deal with the post-industrial service economy. Acemoglu and Robinson's observation that all exclusive institutions eventually fail, while inclusive ones may continue indefinitely is due to the unique (perhaps unrepeatable) event that the inclusive institutions of the West were able to integrate communications, services and computers into economic growth in a way that more centralized economic institutions did not. It appears that it is the match between institutions and technology that matters, and not that some institutions are intrinsically superior for all technologies. With mass production, extractive institutions appear to do quite well looking at China; with the service economy it is more difficult.

The fact is that Germany has done well in innovation under all sorts of institutions brings up the question whether it are the institutions alone which make the difference? Maybe it is the German culture, which is the key driver for German innovative strength and economical power? My claim in the present thesis is that values, which managed to survive in German culture, were the key driver for innovative and economic power of contemporary German economy and that they far outlived the third Reich.

One issue that Acemoglu and Robinson quite well explain is the evolution from extractive to inclusive institutions. Historically institutional change often takes place through revolution. In some cases extractive institutions replace inclusive ones; in others one group of extractors is replaced by another. Acemoglu and Robinson argue that the key is whether revolutions are broad based or narrow based. While they make a good case, this is not completely true.

Historically speaking, we are far from a complete explanation of the role of cultural values in history. Historians argue about Enlightenment but in fact they already point out that there were a number of Enlightenments (e.g. the Scottish one of Adam Smith, the French one of Voltaire and the German one of Kant), paving the way for different institutional solutions.

An important example is the broad-based French revolution of 1789. Yet the extractive monarchy was quickly replaced by the extractive Napoleonic regime which was again replaced by extractive regimes until the advent of the third

Republic almost a century later in 1870. Acemoglu and Robinson argue that the eventual emergence of this inclusive regime is due to the original broad-based nature of the revolution. Given the substantial amount of time that elapsed between the revolution and the third Republic this is a difficult argument to make. There are many examples also for the other side of the coin – of narrow based revolutions that have brought about inclusive institutions. A particularly simple one is the Italian "Risorgimento" that led to a more open political regime than those pre-existing the country's unification and to substantial economic growth. It was, nevertheless, a pretty elitist affair. In more recent years, the Spanish transition from the dictatorship of Franco to democracy was a coup d'état carried out by the King of Spain and a relatively small group of political dignitaries. On April 25th, 1974, a radical fraction within the Portuguese Armed Forces, the MFA, revolted against the government. Until that day Portugal had been under a fascist dictatorship for over half a century. It led to the fall of the fascist dictatorship under Salazar for over half a century. Whether the MFA was left or right wing inclined was unclear at the time. The extracted military revolt created a space. Left-wing activists began returning from exile, and new political parties sprouted up. The parties all used the situation to gain political power in the government. At nearly the same time ordinary people, in contrast, used the situation to improve social conditions in their communities and workplaces through new autonomous organizations. It was here that the true revolution was fought.

Acemoglu and Robinson discuss a lot of interesting examples of not functioning extractive political systems in history and the present. They also address examples of successful inclusive political systems which have led nations to prosperity by inspiring leadership stimulating entrepreneurship and facilitating innovation and encouraging individuals to develop themselves. It is striking that extractive political regimes are very persistent and clearly very difficult to develop to a more inclusive one. How it comes that so few people can be successful in exploiting so many other people - sometimes hundreds of years?

Isn't it very much related to the culture of a nation? Every person carries within him or herself patterns of thinking, feeling and acting that are learned throughout the person's lifetime, both in extractive and in inclusive political

systems. As soon as these have established themselves within a person's mind he or she must unlearn these patterns before being able to learn something different, to act and behave different and unlearning is more difficult than learning for the first time. To evolve from thinking and feeling as learned under extractive institutions to thinking, feeling and acting under inclusive ones takes time. In the book Cultures and Organizations (Hofstede et al., 2010) Hofstede calls these patterns of thinking, feeling and acting mental programs. I would like rather to talk about repertories of values for assembling and designing sense-making constructions by individuals and groups. **Following Hofstede I think that the sources of one's mental programs or of the repertories of values for sense-making activities lie within the social environments in which one grew up. The customary term for such mental program, which to me looks like a stage design for sense-making performances is culture.** Sense-making is not only a solitary activity. Sense-making does imply the learning from previous generations and also teaching the future generation what one has learned oneself. The core of culture is formed by (learned) values, which are subsequently used to make sense of experiences, both individual and collective. Values could be described as broad tendencies to prefer certain states of affairs over others. Culture reproduces itself because sense-making never stops; sense-making experiences are passed from one generation to the other. No group or society can escape cultural submersion in symbols, metaphors and other constructions for making sense of our lives. Creating and maintaining shared rules and believes, even when they are not written down, is a precondition for group survival as an identifiable group of the Dutch, the Kurds or the Turks.

Countries differ in their institutions which mostly find their roots in historical events like colonization, international trade, wars, military coups, collective emigration etc. These political institutions comprise rules, laws, education, health care, media, art, sciences and govern the distribution of power, ownership of production factors, wealth and income. Any single country values are to some extend related to the structure and functioning of the national institutions. Some values are better kept and maintained than other. There is an interaction of values and institutions visa versa. An important consequence

of this fact is that we cannot change the way people in a country think, feel, act and behave by simply importing different institutions. Initially this can lead to a lot of confusion, disorder and even local resistance as political institutions and the herewith related economical systems are not culture free. Nation-making failed in Iraq not because US troops did not defeat the dictator, but because the post-war reconstruction did not account for a transition from one set of values and institutions to another.

In an extractive politic system people learn how to survive and what is considered good and obstructing behavior. They learn to accept power distance between themselves and those which possess the power and learn that power distance is a normal thing in life and should be accepted. People could perceive this difference in power as security, tradition and conformity though they may worry about the regime they welcome the comfort that their existence brings. In fact they want to follow clear rules and structures. They gain a sense of control through what they are told and are conforming to agreed laws and statues, they seek to preserve the order as it is. Any change could make them uncomfortable. This "conservation" as Schwartz (2004) calls it, is especially strong in collective cultures. Shane's analyses showed negative correlation between the inventions patented and power distance, they found the same for uncertainty avoidance. Williams and McQuire (2005) found that power distance and uncertainty avoidance had a negative effect on economic creativity in a country. Very much related with culture is the level of trust inherent in a society as described by Francis Fukuyama (1995) in his book Trust, the Social Virtues and the Creation of Prosperity. The lack of trust outside the own collective, which could be described as the extended family, makes it hard to create networks with unrelated people, organizations, research institutes, government officials etc. In strongly collective cultures this negatively effects innovation and economic development. The analyses of Shane (1993) showed the same negative correlation.

Jagdeep and Chohokar (2007) calls this loyalty and cohesiveness in their own organizations and families culture In-Group Collectivism. Unfortunately these cultural aspects are not mentioned by Acemoglu and Robinson.

Extracting political systems tend to survive during generations as the citizens

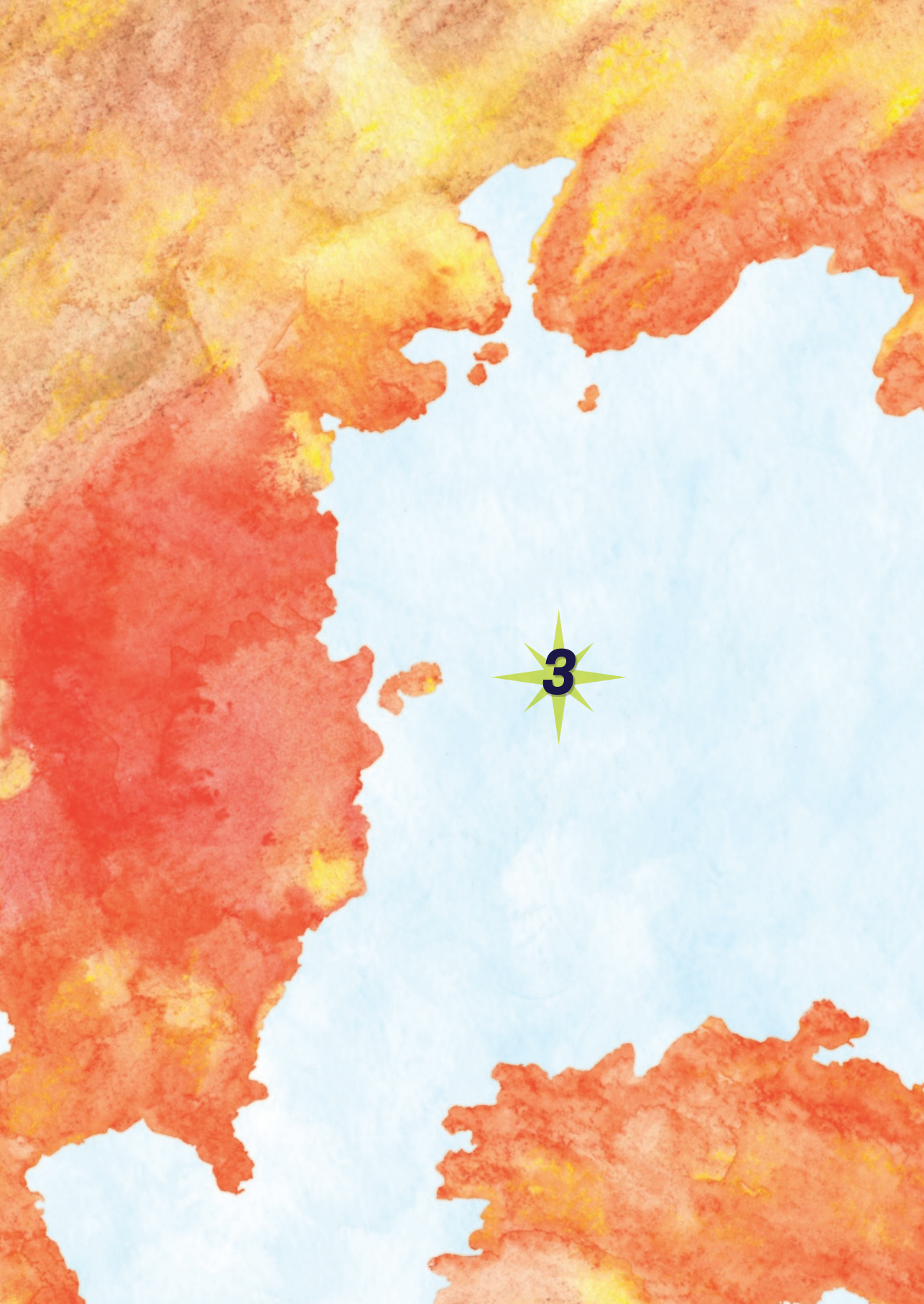
have adopted cultural values as a result of it. These cultural values could lead to less initiative, less innovation and less entrepreneurship which could cause nations to become poor and eventually to fail. I therefore do not share the opinion of Acemoglu and Robinson that not culture is an important cause of nations to fail.

They argue that “extractive institutions” were the cause of the collapse of the Mayan society in the end. How it comes that it could survive for close to one thousands of years? Possibly it could because the Mayan society itself supported its own culture which was very developed in is top Classic Era period. One of the mightiest civilizations in the ancient Americas simply fell into ruin in a very short time. The Classic Era Maya civilization was quite advanced. The Maya were keen astronomers, plotting every aspect of the sky and accurately predicting eclipses and other phenomena. They had a series of overlapping calendars which were quite accurate. They had a well-developed religion and divine pantheon. In the cities, stonemasons created steal, statues which recorded the greatness of their leaders. Trade, particularly for prestige items like obsidian and jade, flourished. The Maya were well on their way to become a powerful empire when suddenly the civilization collapsed and the mighty cities were abandoned. There are many theories as to what happened to the Maya, but little consensus among experts. To mention a few: the famine theory as a result of overpopulation in combination with the depletion of agricultural soil, the environmental change theory which caused a draught, the disaster theory and the colonization by the Spanish. Experts in the field simply do not have enough solid information to state with clear-cut certainty how the Maya civilization ended. The downfall of the ancient Maya was likely caused by some combination of the factors above. It is almost certain that is wasn’t a political factor which led to a collapse of this very developed culture under an extractive political system.

2.3 Conclusions

My discussion about cultural determinants of the national governance systems of innovation have been conducted along the lines suggested by the authors of the book "Why Nations Fail. The Origins of Power, Prosperity and Poverty" (Acemoglu and Robinson, 2013). I agree with their focus on the importance of centralized political structure and all basic services for the citizens of a country – the ways in which this centralization is implemented are culturally colored conditions for economic success in the international arena. Second, we should duly acknowledge, as the quoted authors do, that large inequality in power leads to a lower exploitation of resources or simply to excessive waste. Third, contrary to the neoliberal doctrines, accounting for cultural influences and governance systems allows us to notice that inclusive political and economic institutions led to more and more sustainable economic prosperity for the citizens of a given country. Fourth, I agree with Acemoglu and Robinson that technological and social innovation linked to a well regulated (by culturally legitimate governance systems) capitalist markets lead to a broader distribution of power and wealth and therefore sometimes are blocked by abusive elites – usually those in power in extractive political systems. However – this is not always and entirely the case. If we assume continuity of elites in economic and academic institutions - technological innovation in Germany did not get reduced even during its most extractive, overregulated period.

When developing my argument, I had also to go beyond the abovementioned authors. First, as already put forward, my focus on cultural determinants of governance systems makes me criticize them for underestimating the key role of culture in the development and prosperity of nations. Cultural legitimacy should be recognized – otherwise we ignore and even deny the possible positive intentions of leaders of extractive institutions to bring more prosperity to its citizens. Singaporean authoritarian power elite, or the Japanese or German or Korean one – they all did play a powerful role in stimulating innovation and reaping its fruits through a firm governance system. Therefore I read the abovementioned book cum grano salis – we should not try to bring everything back to the theory of extractive and inclusive political systems and related economical systems. Should we do so, we will be obliged to ignore other important circumstances like upcoming competition from other nations, which accompanies globalization, the unexpected circumstances, which change the environment of innovation – for instance natural disasters, severe effects of global warming in specific countries, and even variations in political context resulting in changes in industrial governance of nations.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The governance of innovation from a European perspective, social articulation and transmission of knowledge

The governance of innovation from a European perspective, social articulation and transmission of knowledge[2]

The influence of culture, especially national culture, which shapes institutional environment of knowledge production, is best traced through the governance of academic institutions and their links to the broader social world of companies and governments. It is here that the innovation is sustained and exploited or neglected. How does the governance of innovation on the level of the institutions of a nation-state contribute to the transmission of knowledge and the implementation of innovative ideas in the economic life of a country?

Do universities matter? Let us examine what are the key trends and changes in the governance of Universities and the transformation of Universities into organizational actors. This also effects the governance on academic research in the sense that it leads to a gradual evolution of the specific public science system in which research is being initiated and executed.

Cultural evolution involves social articulation and transmission of knowledge. What makes a culture distinctive is how it distributes interactions in the Information-Space.

The innovation policies of the European Union, play a noticeable, but not yet dominant role in the EU member states, at least not in the large member states. The wide gap between the North of Europe and the South and East of Europe in innovative performance is, despite the innovation policies of the European Union, still difficult to overcome.

If we take a closer look at the statistics, we can notice some interesting asymmetries. Northern European countries show a higher score on the Innovation Index, whereas countries in Southern Europe, although they are formally also market economies with parliamentary democracies, score relatively low. Can we relate this difference to cultural factors or is it because Northern Europe just happens to have better universities?

[2]Moonen, P.J.J. (2017). Journal of Organizational Change Management, Vol. 30, No. 2, pp. 243-262.

3.1 Key Developments at universities

Higher education systems in Europe are currently undergoing profound transformations. At the macro-level, there is an increase in the number of students enrolled, subjects of study offered, and university missions that have gained legitimacy over time. At the second level changes are evident at the level of university governance. New Public Management reforms have put into question the traditional mode of governance that was based on the interplay of strong state regulation and academic self-governance, and most governments tried to facilitate the dissemination of knowledge and inventions made within the research communities to the potential users in business and government.

Many policy-initiatives in Europe focus on strengthening the link between universities and their socio-economic environments. One needs only to consider the Lisbon strategy, with its aim to make the European Union the most competitive and dynamic economic region of the world.

In recent years in most OECD countries and especially in Continental Europe the traditional forms of university governance have come under pressure. There has been a considerable loss of confidence in the capacity for self-governance by the academic community. At the same time, strong state regulation has become subject to a fundamental ideological critique, in higher education as in other domains. In Europe, New Public Management reforms have led to changing modes of inter-organizational steering as well as institutional governance of universities. Concepts and instruments borrowed from the corporate sector play an important role here. Despite all the differences among countries and their universities, the relationships between universities and the state, as well as with other social actors, are undergoing profound changes and new governance regimes are being established. We can currently observe changes regarding four aspects in the governance of European higher education: from direct and top regulation of universities to steering at distance; a strong increase of actors involved in university governance; Europe is increasingly becoming a relevant level for university governance; competition as a distinct mode of governance is becoming more important. These four aspects reinforce one another and have become increasingly important in a diverse range of European countries (Paradeise et al, 2009 and Jansen, 2009).

First, the state is increasingly taking a more supervisory and "steering at a distance" approach, in which more indirect ways of governance play a larger role. Whitley defines this approach as the "state-delegated competitive" Public Science System (Whitley, 2010) the management by objectives approach, for example, is of importance here, i.e., objectives are defined by the state, ideally in cooperation with the universities. The manner of reaching these objectives, however, is left to the universities.

Second, we can see an amazing increase in the number of actors involved in university governance, one which goes far beyond the traditional dualism of state governance and academic self-governance that is so well-known in Europe (Clark, 1983). Universities are becoming more organizationally flexible and accommodating towards students, there is an increased service-orientation towards students as customers, they also evolved a more flexible relationship with society, by diversifying their contacts and activities with the public and private actors. This makes the picture much more complex than twenty years ago. We also see in all European HE systems an increase in the number of accreditation and evaluation bodies both with regard to teaching and research. Additionally, institutional boards or boards of trustees are being established. There is a lot of controversy around this issue as well as very heterogeneous practices among European universities.

Third, Europe is increasingly becoming a relevant level for university governance. The Europeanization of higher education has been spurred first and foremost by the so-called Bologna process, which aims at a common European higher education area. The importance of the Bologna process has been stressed by many analyses. The Bologna process grants legitimacy to a variety of actions in European countries, actions that do not directly derive from the explicit political statements, goals and procedures to be found in the policy documents. Moreover, the EU policies enabled universities in member states to profit from increased faculty and student mobility and joint research projects, co-financed by Brussels.

Fourth, competition as a distinct mode of governance is becoming more important. Competition in higher education is different from competition in the business area. Peers, i.e. other competitors on the supply side, play a

decisive role, while actors on the demand side for academic goods (like firms or potential students) play a more indirect role. In the university sector, evaluation by other academics and ranking tables, which are at least in part also based on academic judgments such as peer review shape competitive processes over scarce resources such as money and prestige (Whitley, 2010). Historians and sociologists of science have shown that competition among scientists had been deeply embedded in scientific life for centuries. However, competition among scientists is currently aggravated through rankings, evaluations, and indicators of all kinds.

Likewise, competition is seen to be of prime importance as a mechanism to stimulate research excellence within EU member states and at the EU level. In a recent Open Method of Coordination (OMC) Working Group, representatives from 17 EU member states agreed on the importance of fostering competition by a variety of instruments, including benchmarking processes and sharing of best practices (Crest, 2009). Furthermore, we can currently witness the transformation of university organizations into competitive actors that increasingly behave like strategic actors, and less like loosely coupled systems.

The university sector in Continental Europe is currently a laboratory for experimenting with stronger competitive forces that include related managerial capacities. At the organizational level this implies the construction of organizational actorhood. Universities are currently being transformed, with a new emphasis on the organizational level as an important and independent level of decision-making. This allows us to conceive of universities as "organizational actors". By the term "organizational actor" I mean the image of an integrated, goal-oriented entity that is deliberately choosing its own actions and that can thus be held responsible for what it does. This relates strongly to the work of neo-institutional sociologist and globalization theorist John Meyer and his collaborators (Krücken et al, 2006). Meyer's work on actor hood tries to expand neo-institutional theorizing by reconstructing modern actors, be they individuals, organizations, or nation-states. A modern actor is conceptualized as "a goal oriented, bounded, integrated, technical effective entity" (Meier, 2009) that is nevertheless not an autonomous decision-maker. Instead, modern actors can only be understood by reconstructing "their practical

embeddedness in taken-for-granted culture and relationships". But there is other important work to quote here. In a rather general discussion of public sector reforms, Niels Brunsson and Kerstin Sahlin-Andersson claim that public sector organizations are transforming into ´"real organizations" that, among other features, are based on identity, hierarchy, and rationality (Meyer, 2009).

Richard Whitley has recently developed an important typology of universities as strategic actors, while he also highlights their limitations and variations (Whitley, 2008). Other key European scholars who have contributed to this discussion include Harry de Boer, Jürgen Enders, and Liudvika Leisyte (de Boer et al, 2007).

To summarize: In universities, according to comparative and organizational research, centralized power was limited and strong internal governance was mostly absent. Although cross-national variation exists, this pattern can be found in very different national systems. Being torn between internal (departments, professors) and external (state) forces, university organizations have only very little in common with the state bureaucracy as described by Max Weber (Weber, 1978).

In short, universities must increasingly define their "own" legitimate goals. The most visible sign of this is the development by universities of "mission statements". In my view, many universities have transformed traditional and standard accounts of what a university is expected to do (like "research and teaching") into their "own" and explicit mission. This is strongly supported by the State and the Ministry of Education in different countries like in the Netherlands. For instance each University for Applied Science has to convey its own unique and distinguishing mission. Such a mission statement might not add any information concerning the central activities of a particular university, but it helps redefining the employees as united around organizational projects rather than a vague academic professional group. Nevertheless, this transformation of a general institutional account into a specific organizational one confirms the idea that the university is increasingly an autonomous entity that deliberately chooses its own destiny as a "real", organizational actor (in this choice universities are guided by cultural values), and that is responsible for what it does.

3.2 Governance as a challenge to university education

Governance changes, particularly in academic research management have their impact on the initiation, implementation and financing of research of Ph.D. students. Ph.D. projects serve as crucial nodes for connecting academia and industry. We also observed an increase of the variety of the research projects due to more and more specializations that go far beyond the traditional disciplinary studies. Universities basically have two missions: teaching and research. Over the time the so-called "third academic mission", i.e. the direct contribution of universities to economic development by feeding inventions into national economy has become a key element in the mission statement of universities. With the "third academic mission" universities have become an integral part of regional, national, and global innovation systems, although there was a price to pay in the form of an excessive dependence on corporate sponsors. Trans-national networks of universities also have large impact on research of Ph.D. students.

The changing role of the state in organizing the public sciences and the context in which research is carried out has been especially marked with regard to the organization of support for academic research and the governance of universities. The funding of such research is undergoing a transformation from being allocated on a predominantly recurrent, block grant basis, to being dependent on success in competitive bidding for project grants. In addition, as mentioned before, universities as organizations have been encouraged to become more significant strategic actors, with increased control over "their" resources, and more accountable to the state for their performance. The combination of declining public financial support for academic research in real terms in many countries and the widespread belief that academic knowledge should be a significant resource for competiveness has also intensified pressures for public research organizations to seek revenues from the commercialization of research results and to collaborate with private companies (Whitley, 2010).

We can summarize these general changes in the governance of public sciences as four important developments in the organization and control of scientific research. First, there has been a rapid expansion of the number of qualified

scientists and resources for research. This reduction in the rate of growth of state funding has been accompanied by a shift away from relatively stable recurrent support for research institutes and universities towards a more competitive project-based funding. Second the states have developed a series of relatively proactive policies for steering the direction of research as part of a more general recasting of science-society relations and additionally, many states have substantially restructured the higher education systems following the rapid expansion of students and staff. This involved the formal delegation of some administrative and financial authority to the managers of universities and other public research organizations. Third, the institutionalization of various procedures for assessing performance public research organizations and auditing their outputs e.g. the number of patents applications. Finally, fourth, there has been a reorganization of relationships between public sciences and private business, which has led many public research organizations to become more actively concerned with the management of research commercialization and the encouragement of academic entrepreneurship. These developments have changed authority relationships governing the selection of scientific goals and projects and the evaluation of the results in many countries. (Whitley, 2010)

The central difference between the PSS (Whitley, 2010) in different countries concerns the relative authority over research goals, projects and standards of three sets of authoritative agents: the state, scientific elites, and the research organizations where scientific work is conducted. In my opinion the specific public science system of a nation is related to its specific set of cultural values (this cultural background is usually taken for granted and tacitly assumed, so it rarely becomes a focus of evaluation or analysis) and also relates to the organizational culture and structure in which research is being initiated and executed. We can distinguish the following three pairs of PSSs: state-dominated, state-delegated and employer-dominated PSS. Variations in the relationships between these agencies, and in their internal organizational cohesion and structure, help to identify the key contrasts between different kinds of PSS and the ways in which they are changing as a result of the governance shifts as outlined above. The first pair consists of PSS where the state retains considerable levels of control over employment and resource allocation, but

differs in the degree to which states share authority with intellectual elites. In state-centered PSS the state not only employs researchers, allocates resources, and determines reward policies, but also incorporates scientific elites into political patronage networks that limit their autonomy ad discretion. In state-shared PSS in contrast, scientific elites are more independent and able to determine their own research priorities and standards, in the state-delegated pair of PSS, scientists are employees of universities and other PRO's, but these organizations remain largely funded and chartered by the state. We can distinguish the state-delegated competitive PSS and the state-delegated discretionary PSS. In the former the researchers have to compete intensively to gain resources from a small number of research foundations, and are highly dependent on the decisions of few peer review panels and foundation priorities In the state-delegated discretionary PSS the researchers have a more independent discretion over research goals, funding agencies, scientific elites and PRO managers. The last pair, the employer-dominated PSS, consists of situations where employers are much more able to determine employment conditions, resource allocation, and organizational structures independently of the state, but have to obtain most of their resources competitively from diverse forces. Within this pair we can distinguish the employee-competitive PSS and the employee-consensus centered PSS. Universities and other employers in the employee-competitive PSS are much more concerned to become scientifically prestigious by making major contributions to intellectual goals than are PRO's in employee-consensus centered ones, and so share considerably authority with scientific elites in making many decisions. Degree of competition considered to be desirable in a given PSS depends on the cultural background and its hierarchies of national cultural values. This is one of the channels through which culture finds its way to being a knowledge asset (or liability) – by influencing decision making in management of knowledge assets.

3.3 Culture as a knowledge asset and its consequences for the national position in the information space.

Technology has been treated by many anthropologists as an instrumental and material extension of culture. Much of what we call technology is knowledge physically embodied in objects that you can touch or physically manipulate. When we deal with culture which had not been embodied in technology its study is more difficult. Only a small part of what we call cultural knowledge becomes visibly and materially embedded in technologies and artifacts. A large part is embodied in an indirect way in social processes, institutional practices and traditions, many of which are carried around in people's heads, but are not readily retrievable and comparable.

In recent years our appreciation of culture as a knowledge asset has undergone a transformation. The rise of Japan as a world class competitor over the last three decades has brought home Western managers that much of the managerial and technological knowledge that they have taken as universal in its implication is often in fact specific to a culture and draws on deeply rooted and value-laden assumptions of how organizations and institutions function. It can be adopted and sometimes improved upon but only with considerable prior investment in cross-cultural understanding and adaption.

Culture operates at many levels of aggregation. We can think of culture of a group, of a firm, of an industry or a profession, of a region, of a country (usually a nation-state, hence the term national culture), or a group of countries. Yet whatever level we choose to define it, culture remains the means by which non-genetic information is transmitted either within a given generation of agents or from one generation to the next. Technological practice forms an integral part of cultural transmission. But technological practice usually combines theoretical knowledge that may itself be pretty well universal in scope with more practical knowledge that is often much more local and culture-specific in its application.

The Western bias towards classifying as knowledge only that which can be given codified and abstract formulation, has led knowledge assets, whether embodied in physical objects such as a plant or machinery, or in organizational practices such as planning and budgeting systems, to be treated as if they were

essentially technological in nature. **They are not.** They are first and foremost cultural (since culture determined their implementation and practices in which it is used) and only secondly technological. The potential value of a knowledge asset is largely a function of how it is used, by whom and in what context. A proper understanding of the context, social, cultural, political or otherwise, is thus essential to the proper application of technique, in other words to the proper exploitation of knowledge assets embodied in a given technology.

In many definitions of culture the structuring and sharing of information within a population distributed across space and time is a central ingredient (Kroeber, 1952). For this reason the Information Space as defined by Boisot in his book Knowledge Assets (Boisot, 2010) lends itself to a study of cultural transmission. Here, the structuring of information is captured by codification and abstraction dimensions of the Information Space and the sharing of information is captured by the diffusion/dissemination dimension. Central to the idea of using the Information Space in their way is the observation that cultures vary in their ability to structure knowledge and hence in the spatio-temporal reach of the applications of this knowledge in distant domains. The way that knowledge assets distribute themselves in the Information Space and the trajectories of the Social Learning Cycles that bring them into being are both profoundly affected by cultural considerations and how these are expressed in stable institutional structures and in formatting of expectations and behaviors. The Hofstede dimensions of culture: Power Distance; Uncertainty Avoidance; Masculinity versus Femininity; Collectivism versus Individualism; Indulgence versus Restraint; Long term versus Short term orientation can be applied in the process of evaluating these cultural considerations (Hofstede, et al., 2010). This holds particularly true with respect to the contribution of the positioning of a national culture along these dimensions and the overall influence upon inventiveness. Also the three bipolar cultural value dimensions of Schwartz (2008) revealing universal cultural values that transcend specific space and time: Harmony versus Mastery, Intellectual Autonomy versus Traditionalism and Hierarchy versus Egalitarianism can also be applied in order to explain this cultural influence upon knowledge assets management. Hofstede's dimensions do not stand alone and they can be combined with other approaches to the

classification and evaluation of cultural influences upon organized knowledge-intensive processes. Boisot describes four different types of transactions, which lead to an emergence of a relatively stable set of organizational practices in processing information and managing knowledge assets in the Information Space: Bureaucracies, Markets, Fiefs and Clans.

Bureaucracies

Bureaucracies operate on a "need-to-know" basis, that is, on the controlled diffusion of well codified narrative and abstract-symbolic information to selected players within a given population. In bureaucracies the information is well codified and abstract, but its diffusion is strictly regulated by the operation of hierarchy. The pyramidal structure of an organizational hierarchy offers superiors a strategic information advantage which can be converted into power over subordinates. In this type of transactions relationships are impersonal and hierarchical, there is a hierarchical coordination and no necessity to share values and believes. High Power distance and high uncertainty avoidance are important cultural dimensions supporting and legitimizing bureaucracies (Hofstede et al., 2010). Traditionalism and Hierarchy support bureaucracies (Schwartz, 2008). France, Spain, Italy and Portugal score high on these dimensions. One might say that there is more tacit acknowledgement of and respect for bureaucracy than in other national cultures, which score less highly on these dimensions. Scoring high on these cultural dimensions, and thus respecting the bureaucratic rules of organizational conduct, appears to negatively influence the innovative strength of nationally managed knowledge producing institutions. Finland also tends to occupy the bureaucratic rather than the market region of the Information Space but for a different reason: prima facie it looks like cultural dimensions are no different from the other northern European countries, but in pragmatic management there is a greater role assigned to the state in contractual relations, which might trump cultural influences with the political and historic ones (the long-lasting conflict with autocratic Russia).

Markets

Organizations jointly labelled as Markets use information which is as codified and abstract as among bureaucracies. However, the information is also widely diffused and available for anybody, there is no control of its selective distribution. This makes the system largely self-regulating; the relationships are impersonal and competitive. There is horizontal coordination through self-regulation and there is no necessity to share values and believes. The information environment of a pure market transaction requires codification, abstraction and diffusion of all relevant data. Organizations and employees are free to pursue individual objectives. Low Power distance, low Uncertainty Avoidance, high Individualism and high Masculinity are important dimensions in Markets, which facilitate and encourage rapid circulation of communications and interaction records. The same holds true for the high score on Openness to change (Schwartz, 2004) and Intellectual Autonomy (Schwartz, 2008) As such the UK could be placed in the market region of the I-space. High scores of nationals from these cultures on cultural dimensions mentioned above favor innovative strength. Following Boisot we could put Sweden in between the bureaucratic and the market region of the Information-Space. Innovative, but just not as much as the higher scorers.

Fiefs

Fiefs reflect the charismatic power granted to one or two individuals on the basis of unique situated, that is concrete and uncodified knowledge that they are deemed to possess but which is hard to articulate and share and is kept at the tacit, group-bound basis. In Fiefs the information is uncodified and concrete. The information diffusion is limited by lack of codification and abstraction to face-to-face leadership-controlled groups and individuals. Relations are (very) personal and hierarchical / charismatic. There is a submission to superordinate goals and hierarchical coordination. There is a high pressure to conform to share values and believes. The personalized relationship between team members is essential to the building up of a sense of shared values and trust between them and essential to the very personal authority of the team leader. The power she/he wields over her team is of a very intangible kind based on professional ability and personal qualities. There

is an acknowledgment and preference for charismatic authority. It creates disciples rather than subordinates and its power to command obedience depends on the existence of personal loyalty based on trust and shared values rather than, as with bureaucratic authority, on the ability to coerce. The team and the leader may share the same scientific objectives, but these may well be personal to the leader herself and express her own long-term professional aspirations. Collectivism (joined values and mutual trust, strong interpersonal relations), (Hofstede et al., 2010) is an important cultural value within the team or organization, also the large Power distance and high Uncertainty avoidance in fiefs position could be an obstacle for members of a research team to openly communicate new creative ideas to the management. The same for high score on Conservation (Schwartz, 2004) and Traditionalism and Hierarchy (Schwartz, 2008). This may negatively influence their innovative strength. Portugal demonstrates hierarchies of cultural values which are revealed by respondents in Hofstedian research as belonging to the fief region of I-space. Most researchers position Portuguese national culture which drives dominant management forms of knowledge assets in the fief region of the I-Space.

Clans

Clans develop on the basis of concrete knowledge and experience and tacitly held values. Clans arise within families and professional and social elites linked by strong collective goals. In Clans the information is uncodified and concrete; it is diffused much more broadly than in fiefs, but the diffusion is still limited by lack of codification and abstraction, which means that members of clans prefer to face-to-face relationships. The relationships are personal but they need not be as hierarchical as in clans. Goals are shared through process of negotiations between pairs. Horizontal coordination is achieved through negotiations in which politics and personal power may sometimes weigh more than rational deliberation. There is a necessity to share value and beliefs. The need for common values and the uncodified nature of the information shared by the participants tend to limit the number of players to what can be handled in face-to-face relationships, oligopoly rather than pure competition. Entry is restricted and individual players are expected to observe the “club-roles” When entry is not restricted and the number of players increases - clans tend

to break down. The uncodified norms and values that act as a social cement lose their power to bind. Also clans can be considered as strong collectives. The clan position may be ideal for the initiation of new ideas and inventions. The cultural value Intellectual Autonomy (Schwartz, 2008) is facilitating this. The Netherlands, being a network economy and putting a premium on connecting individuals and negotiating consensus, could be found in between the clan region and the market region of the I-Space. The same goes for Denmark. Again, while these are the results of the national cultures operating through decision-making individuals in organizational settings, culture is not everything and historical circumstances could have reinforced this clan-close position of both the Dutch and the Danes.

Position in the Information Space

There is strong evidence that national culture and institutions play a part in predisposing firms to interact and use knowledge from a given region in the Information-Space. **National cultural values and beliefs influence socialization practices, legal frameworks and economic behavior patterns in ways that strongly skew the distribution of transactions in the Information-Space. US culture and UK culture, for example, with their strong preference for competitively determined contractual relations are plausible candidates for assignment to the market region of the space.** French culture on the other hand although equally committed to the role of law in determining the cooperation contracts, accords a greater role to the state with status hierarchies in contractual relations and tends to put the country in a bureaucratic rather than in the market region (the famous “logique d’honneur”). In the UK citizens prefer contractual relations with each other without interventions of the state. Both China and Japan, by contrast, exhibit a strong cultural preference for more informal, personal and tacit forms of exchange, China being more centralized than Japan. China tends to apply for the fiefs region of the Information-Space whereas Japan could be positioned in the clan region. A tentative assignment of European countries would put Germany somewhere in between the market and the bureaucratic region, Italy in the clan region, Spain in between the bureaucratic, market and the clan region, Portugal in between the fiefs (small companies) and bureaucratic (larger companies and public organizations)

region, The UK in the market region, the Netherlands and Denmark in between the clan and the market region, Finland in the bureaucratic region and Sweden in between the market and the bureaucratic region. As mentioned before, every nation and corporation mix different transaction forms. However, viewed from the point of cultural sensitivities and preferences, most countries and most nationally headquartered corporations tend to prefer certain regions in the Information-Space above others. This preferred positioning is related to cultural dimensions of countries and corporations. National culture influences organizational culture and structure and leadership and management style. To recognize the impact of national cultural values on organizational culture and leadership characteristics in knowledge intensive organizations and to understand interrelations which are important for competitive advantage in innovation is the very aim of my research.

3.4 The governance of innovation at a national level in 10 selected EC countries following cross-cultural competence of institutional arrangements according to Whitley and Boisot frames.

The Netherlands

In the Netherlands we could speak of a state-controlled competitive public science system. Scientists are employees of universities, which are intensively competing to gain the resources for their researches from a relatively small number of foundations, public and private. Scientists are highly dependent on decisions of peer review panels and foundation priorities. The NWO (the Netherlands Organization for Scientific Research) approves research proposals based on scientific criteria and assigns resources to the various plans (formulated in projects) in collaboration with the top teams for each top sector.

The administrative structure for regional innovation systems is divided into three levels: the national level, the provincial (regional) level and the municipal (local) level. In order to better address the challenges of the Dutch innovation system, the Ministry of Economic Affairs has renewed and restructured its instruments and their implementation. The aim of the proposed reform of the policy mix is to achieve greater flexibility and tailor made solutions to meet the needs of commercial organizations the accessibility of the instruments

is improved by reducing the number of access points and by means of a substantial reduction in the preparation costs and administrative burden. Financial and non-financial measures should motivate entrepreneurs to deliver 'top performances.'(Eurostat, 2009)

Funding of research and development is increasingly privatized, which is guided by an attempt to run a self-limiting bureaucracy. Also by the Golden triangle the influence of multinational companies in research and development has always been large and is even becoming larger. There is a preference for competitively determined contractual relations. The present governmental policy is stimulating competitive behavior of research institutes and universities in research.

The new top sectors approach based on public-private partnerships is well suited to achieve alignment of strategies and the pooling of resources. It has the potential to bring closer cooperation between business and knowledge institutes, such as universities, and to raise the scope and ambition of business innovation including in performing more R&D. The impact of the top sectors could be enhanced however a strong representation of smaller entrepreneurial companies is very important. Young and entrepreneurial firms account for most of net job growth in the Netherlands and are an important source of radical innovation. Care should be taken not to align a too large share of public resources for fundamental research with the top sectors. Dutch universities have strong links with the business sector, as reflected in a comparatively high share of industry funding for university research and a high rate of co-publication. This is not an unmixed blessing, as recent criticism of Shell funding of Erasmus University research (especially of research, which might damage the oil companies) amply demonstrates. The strong focus on commercialization is welcome, but should not shift into a business patronage nor damage the other important contributions that university research makes to the economy and society, particularly for the development of skills that diffuse across the economy and for facilitating desirable but not profitable political choices. It is important to closely monitor the impact of value-choices on overall performance of Dutch fundamental research.

The Netherlands has strong research universities as reflected in the number and quality of scientific publications, as well as high research productivity. Policy should continue to nurture high quality research performed in the public sector. This involves maintaining healthy funding streams for long term independent fundamental research. Government will need to strike balance and avoid cutting too much in funding for core fundamental research (OECD, 2014).

The current Dutch policies with a strong focus on the top sectors by investing a large share of public resources in research and development in the top sectors, the Netherlands will move from a more clan position to a market position in the Information –Space. The clan and market position in the Information Space favors innovative strength.

Sweden

In Sweden there is a more state-delegated discretionary than a state-delegated competitive Public Science System. The researchers have a more independent discretion over research goals, funding agencies, scientific elites and PRO managers. The research community itself has a key responsibility in controlling research funds.

Sweden has a model of innovation governance based on a thin ministerial layer in charge of drawing up policies (again, as in the Netherlands, a case of a self-limiting bureaucracy). Powers of implementation are transferred to a complex array of agencies, which are also responsible for the design of policy instruments. In recent years, there has been a growing policy debate about the status of the innovation system, which has stimulated a change in the policy mix in favor of innovation. Key measures can be divided into research-oriented instruments on the one hand, and market-oriented instruments on the other. The former include measures to create international competitive research environments, more funding for strategic research (life sciences, engineering and sustainable development) as well as improving graduate schools. Market-oriented measures include improved transfer of technology and structures for the commercialization of research, as well as an improved supply of seed financing through the Innovation Bridge.

The bureaucratic region is the state delegated and funded side of strategic research and development, the scientist are employees of universities and public research organizations, but these organizations remain largely funded by the state. The market region deals with the implementation and commercialization of research which is dominantly funded by the private sector.

Following Boisot we could put Sweden in between the bureaucratic and the market region of the Information-Space. **Let us note that this new classification and positioning of national research management policies has not been systematically presented in most of the standard EU comparisons and reviews. We are trying to see more than a collection of statistical data – emergent patterns of differentiation caused by cultural influences differing on a national culture level.**

Denmark

Also Denmark applies a more state-delegated discretionary than a state-delegated competitive PSS. The researchers have more independence, i.e. discretion over research goals, funding agencies, scientific elites and PRO managers.

Denmark has a strong science base, which has been increasingly dominated by universities over the past five years. Public expenditures on R&D were among the top five OECD countries. Danish scientists perform well in terms of S&T publications in top international journals and patent applications. The University Act was amended to give universities more autonomy for arranging their management structures.

Innovation is seen as a cross disciplinary theme influencing a number of policy areas. Danish innovation policy is characterized by strong stakeholder involvement in policy formulation and a strong tradition of consensus. There is interaction with all key stakeholders and consultation and partnerships increasingly feature on the agenda. Coordination among the different organizations involved in policymaking related to innovation plays an important role. Inter-ministerial committees were recently established to further improve this coordination and it is hoped that they will also serve as self-limiting bodies within national governmental bureaucracies.

Innovation Fund Denmark has the purpose of funding advances in science and technology in order to boost research and facilitate innovative solutions for the growth and employment of Denmark. It focusses on finding solutions to specific societal challenges and strengthen private sector research and innovation initiatives in small and medium-sized companies. It supervises an evaluates projects that have been awarded funding in order to safeguard the progress of projects. The objectives should be achieved by means of innovations and technological advances, interdisciplinary alliances, thriving entrepreneurship, research excellence and a dynamic international outlook. Innovation Fund Denmark has defined key research areas.

Different organizations strongly interact in the policymaking. Negotiation and striving for consensus in between different stakeholders are very common in establishing innovation policies.

The research and development policy of Denmark is still strongly positioned in the clan region of the Information-Space although the Danish innovation strategy will move the country more towards the market region of the Information-Space. As we have noted before, the placing in between clan and market position in the information Space favors innovative strength.

Finland

The state retains considerable levels of control over employment of scientists and resource allocation. It shares its political authority with the social and professional authority of the intellectual elites. We could call this a state-centered PPS.

The Government Resolution on the development of the public research structure, defines the framework for the renewal of its innovation system. According to the Resolution, the public research system will be mainly developed on the existing basis. It also includes a clear action plan for strengthening decision making and guidance in science, technology and innovation policy.

The Science and Technology Policy Council will be developed as the principal expert body in all major questions of science, technology and innovation policy.'(UK treasury, 2009)

For the part of the R&D funded by the state Finland tends to locate itself in the bureaucratic region rather than the market region of the Information-Space as there is a greater power delegated to the state in contractual relations with all other players in the innovativeness arena.

UK

The UK has experienced all six of the major changes to the organization and direction of the public science systems as described by Whitley and the entire new public management campaign has originated in the British government bureaucracies. In some respects, these changes have been more prominent and influential than elsewhere, especially with regard to establishing a mechanism for regular, systematic, nationwide assessment of university research. The UK Research Assessment Exercise (RAE) has become very central and influential. The UK was one of the first countries both to institutionalize university research over twenty years ago and to link it to financial allocations. Consequently, the effects on authority relations there are likely to be more profound than in many other states. The RAE has reinforced the shift from collegial governance with a large influence of universities-based research elites, towards "managerialism" in most universities, with more centralized control and monitoring, greater use of targets and rewards, more bureaucratic procedures, and a more hierarchical, though leaner structure. In short it has strengthened the authority of institutions and their formal control over academic labour. The government has decided that the peer-review-based RAE is to be replaced by the metrics-based Research Excellence Framework (REF). The switch to the metrics-based REF may well reinforce pressures not to stray far from mainstream disciplinary research. It could be said that the REF assessment system more reliant on metrics and less on informed peer review is damaging in its long-term effects on university research. It is counterproductive in terms of generating wide variety of intellectual innovations in the longer term. The effective governance of universities may actually require less external control, not more.

The UK has an essentially discipline-based assessment system for a world in which government policies are trying to encourage more user-focused and

often interdisciplinary research... In fact it applies a state-centered PSS where the state employs researchers, or gives directions if and what researchers can be appointed, allocates resources, and determines reward policies.

One major challenge in the governance system is that business university engagement remains inconsistent across industries and regions. The government, together with the Higher Education Funding Council for England is taking steps to promote best practice in business-university interaction. Another two challenges highlighted in this report are that the UK has not always been effective in translating the products of excellent research into economic gain; and public and private investment in R&D remains lower than that of many leading competitors. In order to help effectively translate excellent research into economic gain, there appear to be a number of opportunities to create a more favorable environment for science and innovation, ensuring that the UK maintains its position among the innovation leaders'.(UK treasury, 2009).

Venture capital, private equity put into new and young firms in high growth (normally high-technology) sectors plays a key role in the development of UK high technology industry. It provides the largest venture capital investment into high-technology in Europe. A paradox ensues. There is a high short term pressure of shareholders. Companies which wish to spend heavily on innovation are constantly under pressure to justify this heavy spending. Shareholders who do not understand the value of spending on innovation impose short-term pressures which discourage it. This may lead to an under-spending on R&D in the UK. What matters, however, is that this paradox is resolved on the market level and research, which promises profits does not have to be discontinued.

The UK can be found in the market region of the Information-Space. The steps of the government to guide research and innovation by establishing a more favorable environment could add some characteristics of a bureaucratic position in the Information-Space, were they not anti-bureaucratic by the very nature of the new public management. As a whole the UK remains strongly positioned in the market region of the I-Space, a position which correlates positively with innovative strength.

Germany

Research is more employer dominated than state delegated as research is being much more facilitated than delegated by the state.

Deliberate and successful attempts to build distinctive collective research strategies, or profiles that involve reallocating resources to particular areas constitute a new phenomenon in the German university system. Rectors and presidents have come to consider such profile-building as an important task, which their increased authority makes it possible for them to push forward. A key part of New Public Management (NPM) governance reforms in Germany was strengthening of university leadership. The formal responsibilities of deans and presidents were extended, and they gained formal powers in decision-making that were relocated both from the state and from the bodies of academic self-regulation. Also in line with the NPM blueprint, state authorities have partly retreated from regulation and favored more global forms of steering at distance. Under the heading of university "autonomy" the specification of financing procedures and teaching programmed was reduced, and university boards, mission contracts between ministries and universities, a performance-based allocation of basic funds, and the accreditation of study programmed by special agencies, were introduced as substitutes.

The changing authority relations in the German university system do not only reflect new distribution of power but also a new institutional model of the university as an organization. Universities are now perceived as organizational actors in the sense of coherent and compact entities that are in control of, and accountable for, their own actions. (Krücken and Meyer, Meyer, 2006).

Innovation governance in Germany is characterized by a federal system involving stakeholders at federal government level and at the level of the federal states (Länder).

The combination of the state effort to improve framework conditions and the education and science system from one side and promoting the innovation activities in firms from the other side, would put Germany somewhere in between the market and the bureaucratic region. The difference between other nation-states, which also remain in a similar region of the I-space, between bureaucracies and markets, and a relatively low level of innovativeness in

Germany, should be explained by the high position on uncertainty avoidance. However, this would require a separate comparative research project, which would lead beyond the scope of the present thesis.

France

Originally the French had a uniform state-coordinated public science system. At present France provides a good example of a stratified and more differentiated, though still state-dominated public science system in which the central state and to some extent scientific elites constituting academic oligarchies traditionally influence research strategies and performance standards, but where the authority of employment organizations and funding agencies has increased during the last decades. Perhaps France tends to move gradually to a limited form of a state-delegated science system.

In the course of the past years, the French innovation and research institutional framework has changed radically. In order to distinguish policy orientation strategies as regard research and innovation from the implementation and effective support, two major new agencies were added to the French national research and innovation system: the National Agency for Research and the Agency for Industrial Innovation. These two bodies are responsible for financing innovation and research.

The recent developments in the French research and innovation system have been carried out to address crucial challenges identified at national level. Strong emphasis is placed on reinforcing public and private linkages and the relationships between producers and users of knowledge (Eurostat, 2009)

The research is still very much state dominated and directed. Although the different French regions have developed their respective research and development policies, their share in total research and innovation budget is rather small compared to the national, country-wide budget.

French culture acknowledges a greater role of the state in contractual relations and tends to put the country in bureaucratic rather than in the market region of the I-space, a position which does not stimulate innovation. Perhaps more changes are to come as a result of the new policies and of the crisis of central planners in energy and ICT sectors, but it is too early to arrive at any firm conclusions.

Italy

In Italy there is a state-delegated public research system, which is still in place, in spite of attempts at improve performance indicators and reshuffle it.

The public support system for R&D and innovation is based on a funding scheme of direct aid to enterprises. The system is articulated around a large number of measures adopted at national and regional level. In recent years the role of regional policies has increased, especially in less favoured areas, mainly as support to innovation and technology transfer initiatives. The government's policy regarding innovation and R&D has focused on three main lines of action: the concentration of (scarce) resources on specific technology areas; the creation of clusters (favouring the aggregation of SMEs to overcome disadvantages linked to their size but also fostering public private cooperation); and the promotion of technology transfer.

Both in terms of policy makers and public-private innovation intermediaries, the Italian national innovation system (NIS), is characterized by a large number of entities and a high level of fragmentation. Low levels of coordination and cultural barriers to public-private cooperation have characterized the whole innovation system in the past, mainly affected by the lack of links and interaction between the main NIS players.'(Eurostat, 2009). Italy is positioned between the fief and clan region of the Information-Space. It is a less favorable position to stimulate innovation.

Both in terms of policy makers and public-private innovation intermediaries, the Italian national innovation system (NIS), is characterized by a large number of entities and a high level of fragmentation. Low levels of coordination and cultural barriers to public-private cooperation have characterized the whole innovation system in the past, mainly affected by the lack of links and interaction between the main NIS players.

Cooperation between firms and organizations is strongly based on personal contacts among the power holders. Generally cooperation between firms, research institutes and universities has been frustrated by bureaucratic rules. The governance of research at a country level by the government and governmental institutions is weak and not very transparent, Most of the research is being initiated and organized by the private sector.

Italy is positioned between the fief and clan region of the Information-Space, with bureaucracies accommodating both clans and fiefs. It is a less favorable position to stimulate innovation than the one in which the bureaucracy holds its own against a single other mode of regulation – either a clan or a fief.

Spain

In Spain the research at universities and other public research agencies, the CSIC being the largest public research organization in Spain is basically state-delegated competitive but also depending on the policies of regional governments state dominated.

In the absence of significant block grant funding for research researchers need to obtain funds through competition from funding institutions (national and regional) or trough contracts with companies.

The Spanish innovation policy-making and delivery structures cannot be understood without considering the regional governments of Spain's Autonomous Communities and Cities. Today, university funding has been decentralized to the regional authorities. The decision of when and how to launch R&D and innovation policies lies entirely with the regional governments themselves, who are free to design their strategies in line with their preferences and available financial resources. The Spanish regulatory framework for R&D and innovation is undergoing important changes which also affect governance models for universities and public research centers. At least six new laws (or revisions of existing laws) affecting the Spanish national innovation system (NIS) have been tabled since 2004 and are either already being debated or soon to be put before Parliament. They include the forthcoming reform of the Organic Law on Universities, the proposed Biomedical Research Law and Public Contracts Law, as well as the recently approved Public Agencies Law, Venture Capital Law and the tax reform.

Overall Science Technology and Innovation strategy: The State Innovation Strategy (E2i) for 2010-15 aims to change Spain's production model by promoting and creating structures to improve the use of scientific knowledge and technological development. STI policy governance: The STI Act creates a new research funding and governance structure for the Spanish STI system with

the creation of the State Research Agency (a funding body) and comprehensive reform of PRIs. The Act defines new governance mechanisms to ensure co-ordination of central and regional governments. The Centre for Development of Industrial Technology remains responsible for funding industrial and innovative activities nearer to the market. Science base: The most challenging tasks for Spain are to increase the quality of its scientific publications and to enhance the contribution of public research to the economy and society. The University 2015 Strategy aims to increase universities' contribution to social and economic needs and to improve their competitiveness. Business R&D and innovation: The government continues to improve the environment for business R&D and innovation and has seen significant increases in the number of innovative and R&D performing firms.

Regional governments have great influence in research and development, private companies openly compete in research and development trying to gain high market shares in innovative products, cooperatives of producers play an important role in the economy of Spain, partnerships and coordination among different stakeholders are evident.

Spain is positioned in between the bureaucratic, the market and the clan region of the Information-Space.

Portugal

In Portugal research is basically state-dominated, however the authority of employment organizations and funding agencies has increased during: it tends to move to a limited form of a state-delegated science system.

The main development in innovation policy in the period under review was the launch of the Technological Plan. This was designed as a flagship program to promote competitiveness and innovation by providing a new orientation for science and innovation policy. Guidelines for future innovation policies are provided in the Technological Plan. Some of them will materialize in the 2007–2013 Operational Program on competitiveness factors. Others, however, have already been implemented following the alignment of PRIME (SME support initiative) with the Technological Plan. One of the features of this alignment was the decision to encourage innovation through grants, instead of reimbursable

loans, as it has been the case since 2002. Another was the launch of specific application calls with a limited term and focusing on issues considered as particularly relevant, such as the modernization of traditional industries (associated to the DINAMO program, which targets traditional industries) and the development of innovation clusters on wind energy.

Codification and diffusion of information is low and coordination is based on loyalty and personal contacts between power holders in society. Individual firms seldom join forces in research and development unless there are collective ties between the power holders. This makes them less competitive and less able to invest in major research and innovation projects. The national government has put a lot of effort in trying to develop a governance for innovation. It aims to design and initiate a national strategy for research and development.

Portugal can be found in between the fiefs and bureaucratic region of the information-Space. This position makes it difficult to stimulate innovation in the country.

3.5 Conclusions

Universities are transforming in competitive strategic actors and form an integral part of regional, national and global innovation systems. Universities are becoming autonomous entities defining their own mission statements. At the same moment Europe is increasingly becoming a relevant factor for university governance.

Cultural evolution of knowledge production involves social articulation and transmission of knowledge. These are strongly related to culture and lead to more complex and institutional stratified structures and communicational patterns which have an influence on the sharing of information and knowledge.

Typically cultures of most organizations and institutions, corporate, industrial, and national, mix different transactional forms so that the resultant institutional order must be described as a configuration that blends together markets, bureaucracies, clans and fiefs. What makes a culture distinctive is how it distributes transactions in the Information-Space.

There is strong evidence that national culture has a profound influence on the position in the information space, not in the least because of the way culturally conditioned sense-making practices become institutionalized by academic communities. This is why a comparative analysis and review of national governance of innovation systems, which strongly rely on the inclusion of academic policies, matter in determining the competitive advantage of nations and their relative innovative strength. National culture and beliefs influence socialization practices, legal frameworks and economic behavior patterns in ways that strongly skew the distribution of transactions in the information space. This distribution is critical for the innovative strength of nations and it is in this area that applying the most robust theoretical approaches in the methodologies of cross-cultural research can yield the most promising results.


4

The impact of cross-cultural competence on the innovative strength of nations

The impact of cross-cultural competence on the innovative strength of nations[3]

A comprehensive review of the theories of Hofstede, Schwartz, the Globe, Boisot and Cameron and Quinn.

What is the importance of cultural values, the organizational culture and management style for innovation?

The theoretical frameworks of the well-known scholars Hofstede, House, Schwartz, Boisot and Cameron and Quinn are critically evaluated and compared with each other. In addition, the cultural rankings and the actual performance in innovation of selected European countries are compared

Before addressing the impact of culture on the innovative strength of nations, different definitions of innovation are being described. The theoretical framework developed on the basis of the six Hofstede dimensions is composed; the nine Globe dimensions are supplemented and the Schwartz values for innovative strength of nations are also being discussed. Culture as a knowledge asset, the positioning in information space and its influence on innovation following the theories of Boisot and the different cultural types as defined by Cameron and Quinn have been studied and evaluated.

The performance of European countries in innovation has been evaluated on the basis of the Global Innovation Index, the patent applications to the European Patent Office and the European Innovation Scoreboard.

Based on literature review one can conclude that there is a strong positive relation between several cultural characteristics of countries in question and their innovative strength.

The relation between national culture in general on the innovative strength of nations has been assessed. The quantitative research on which cultural characteristics and management styles have the strongest correlation with the innovative strength of nations will provide valuable insights for both scholars in this research field and for institutions and companies that wish to improve their innovative strength.

[3]Moonen, P.J.J. (2017). Journal of Organizational Change Management, Vol. 30, No. 7, pp. 1149-1183.

The results of this study provide us with the insight that the innovative strength of a nation or organization can be altered by changing (parts of) its culture. A practical implication of this finding is that a government can for example increase its nation's innovative strength by encouraging cooperation between different institutions and by limiting rules and regulations which could cause barriers in the innovation process.

A social implication of the findings of this study is the knowledge that to improve the innovative strength of a nation, a government needs to pursue a pro-active policy of transforming national culture. For example by changing the educational system and decreasing the power distance between teachers and students. Such an effort to influence the national culture addresses interesting issues regarding the concept of social engineering.

By critically evaluating the qualitative cultural frameworks of several well-known scholars and relating then to quantitative statistical data about the innovative strength of nations, this and the following chapter combined the strengths of both qualitative and quantitative methodologies.

4.1 Definitions of innovation

Introduction

Before addressing the impact of culture on the innovative strength of nations it is important to define what is meant by innovation.

Innovation can be performed in relation to products, services, operations, processes, and people. As long ago as Schumpeter (1950) argued that organizations should innovate in order to renew the value of their assets. Even before this, while the term innovation may not have been used extensively, processes that are associated with innovation and economic and technological change were perceived as being important (Lorenzi et al., 1990; Schumpeter, 1934). Innovation is recognized to play a central role in creating value and sustaining competitive advantage. Bessant et al. (2005, p. 1366) on the role of innovation in renewal and growth emphasize "Innovation represents the core renewal process in any organization. Unless it changes what it offers the world and the way in which it creates and delivers those offerings it risks its survival and growth prospects".

The significance of innovation is not limited to business organizations. The US has a Department for Innovation and Skills (2008), and in the UK there has been widespread and ongoing acknowledgement of the importance of innovation. In 2003, the Department of Trade commented on the link between continuous innovation and jobs, profit and standard of living: "If UK-based companies fail to innovate, jobs and profits will suffer, and our standard of living will fall compared with other countries". More recently, the UK's Department for Innovation Universities and Skills (2008) commented on the wider implications of innovation in the face of globalization and environmental challenges by highlighting the importance of all types of innovation in creating and maintaining competencies and responding to environmental and demographic restrictions. There is agreement that in order to both sustain their competitive position and to strengthen it, organizations and economies need to innovate and promote innovation. Innovation is an important policy and strategic issue. Innovation is tightly coupled to change, as organizations use innovation as a tool in order to influence an environment or due to their changing environments (internal and external) (Damanpour, 1991). Innovation can relate to a wide range of different types of change depending on the organization's resources, capabilities, strategies, and demands. Common types of innovation relate to new products, materials, new processes, new services, and new organizational forms (Ettlie and Reza, 1992). These different forms of innovation settle in varying degrees on different teams, departments, and professional disciplines. Therefore, innovation is important to practitioners and researchers across a range of business and management disciplines, and has been discussed variously in, for example, the literature on human resource management, operations management, entrepreneurship, research and development, information technology, engineering and product design, and marketing and strategy. Each of these different disciplines proposes definitions for innovation that align with the dominant paradigm of the discipline. As Damanpour and Schneider (2006, p. 216) state: "Innovation is studied in many disciplines and has been defined from different perspectives". While there is some overlap between the various definitions of innovation, overall the number and diversity of definitions leads to a situation in which there is no clear and authoritative definition of innovation. As early as 1984, Ettlie et al. (1984) commented on the

problems for research and practice of innovation arising from this disciplinary void. More recently, both Zairi (1994) and Cooper (1998) have suggested that one of the challenges of innovation is the lack of a common definition, which undermines understanding of the nature of innovation. A general definition adaptable to different disciplines and covering different aspect of innovation would be beneficial as "the term 'innovation' is notoriously ambiguous and lacks either a single definition or measure" (Adams et al., 2006, p. 22). Different definitions of innovation have been published by Thompson (1965. p. 2), Wong et al. (2008, p. 2), Kimberly (1981, p. 108), Van de Ven et al. (1986), Damanpour (1996, p. 694), Plessis (2007, p. 21) an Nord and Tucker (1987).[4]

[4] To demonstrate the diversity of the definitions of innovation, I offer a few examples of definitions of organizational innovation where some emphasize different aspects of innovation and others are dedicated to a discipline. Thompson's (1965, p. 2) quick and straightforward definition simply states: "Innovation is the generation, acceptance and implementation of new ideas, processes products or services". A similar definition of innovation was proposed more recently by West and Anderson (1996) and quoted as recently as 2008 by Wong et al. (2008, p. 2): "Innovation can be defined as the effective application of processes and products new to the organization and designed to benefit it and its stakeholders". On the other hand, Kimberly (1981, p. 108) defines innovation from a different perspective which embraces different forms of innovation: "There are three stages of innovation: innovation as a process, innovation as a discrete item including, products, programs or services; and innovation as an attribute of organizations." Some scholars place emphasis on the degree of newness. For instance, quoting Van de Ven et al. (1986) state that, "As long as the idea is perceived as new to the people involved, it is an 'innovation' even though it may appear to others to be an 'imitation' of something ' of something that exists elsewhere". Newness is also associated with change. Damanpour (1996, p. 694) provides a detailed definition of innovation, which is much quoted: Innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment. Hence, innovation is here broadly defined to encompass a range of types, including new product or service, new process technology, new organization structure or administrative systems, or new plans or program pertaining to organization members. Other variations in the definition of innovation arise from different disciplinary perspectives. For example in knowledge management, the focus is on knowledge being vital for innovation or even a type of innovation. As Plessis (2007, p. 21) notes: Innovation as the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services. Innovation encompasses both radical and incremental innovation. In technologically related definitions, the main focus is on innovation being a product related to new technology (Nord and Tucker, 1987).

Innovation, initiation of implementation process and implementation proper of innovation

Innovation

I will define innovation as follows:

Innovation is the embodiment, combination and / or synthesis of knowledge in novel, relevant, valued new products, processes or services. Innovation is the capacity to exploit knowledge and to translate it into potential economic gain.

The dependent variables for the overall innovative strength of a nation are codified for international comparison in the ranking tables expressing the global innovation index of the researched countries as published by INSEAD, the ranking on The European Innovation Scoreboard (EIS) of the researched countries, patent applications to the EPO and patents granted by the USPTO of the researched countries and the GDP of the researched countries.

Although I will address Innovation in this chapter as defined here above to my opinion innovation is the combination of:

- Innovation initiation (where facilitating conditions reflect national priorities derived from values)

The process of transforming new knowledge in the creation of new innovative products or services (where institutional frameworks either accelerate or slow down the process).

In fact it is in the latter stage of inventing new products and services which has the potential to create value when introduced on the market (as opposed to less directly observable significance and relevance of the so-called basic research). These innovations can be patented (in which case they become "observable" for comparative researchers).

In this chapter a will consider the Intellectual assets and the number of patent applications as a dependent variable for the innovation initiation strength of a nation. It involves a simplification, but an admissible one.

- Innovation implementation

The process of introducing newly developed products or services successfully on the market thus satisfying the needs and wants of consumers.

Knowledge & Technology Outputs and Creative Outputs (Global Innovation Index) and Innovations and Economic Effects (European Innovation Scoreboard) are dependent variables for assessing and comparing the Innovation Implementation strength of a nation.

Innovating and implementing cultures

Following the definitions of innovation we could distinguish innovating and implementing cultures, the first more conducive to supplying new creative and innovative ideas, and the second more stimulating towards the developing and implementing of these innovations (successfully) in the market.

The framework of one of the value dimensions from Hofstede's cultural dimensions construct – namely individualism- collectivism dimension - is particularly useful in explaining differences in cultural influences, which are accounted for in our conceptualization of innovation. In general, people in individualistic cultures are motivated to see themselves (he self) as distinctive, separate and unique and hence to pursue uniqueness and to seek novelty as a way to differentiate themselves from others. Being different is not considered risky. On the contrary, people in collective cultures are more motivated to contribute to their in-groups and hence to devote themselves to broadly acceptable, appropriate and commonly useful ideas. They tend to stick to the collectively accepted ideas in their creative endeavors (Hempel and Sue-Chan, 2010; Morris and Leung, 2010). Considerable evidence supports the association of individualistic cultures with the emphasis on novelty and collective cultures with the emphases on appropriateness and usefulness. An important consequence of this difference is that in individualistic cultures, social norms and values promote uniqueness and distinctiveness and individuals are therefore more motivated to pursue radical innovations. The creative pursuit in collective cultures tends to be less revolutionary and more incremental because of the lower emphasis on novelty and uniqueness. Appropriateness and usefulness (and general readiness to accept) are more important than distinguishing oneself.

Based on the framework of Schwartz (1994) one could argue that embracing novelty should influence the intention to buy. After all, a culture which values novelty is a culture that encourages low conservatism (emphasizing autonomy, hedonism, and stimulation above preservation of common good and harmony). Individuals are expected to show off, to increase self-enhancement (emphasizing independence, ambition, successfulness, daring and authority). These results contrast with a careful collective concern for meaningfulness. This concern could influence intention to buy into novelty in a culture that endorses conservatism (as more conducive to the preservation of harmony than accelerated change and a search for novelty). Concern for collectively shared meanings translates into low motivation for self-enhancement.

High or low uncertainty-avoidance seems also to play an important role in determining social rules for dealing with inventiveness. High uncertainty-avoidance societies are less innovative but better in implementing new discoveries once they become accepted. When new ideas and innovative findings are accepted successfully - the uncertainty-avoiding communities tend to be more precise and punctual (by focusing only on accepted novelties they are avoiding uncertainty and stimulating precise implementation). There is a strong case here for synergy between innovating cultures and implementing cultures as partners in global networking (the first supplying ideas, the second supplying followers for developing them).

4.2 Cultural values and their relation to innovative strength

Introduction

We need to discuss sociological and cultural determinants which could have an influence on the innovation process. Therefore culture-dependent relations in innovation could be emphasized (Tiessen, 1997). Granovetter (1985) claims that social and cultural values may effect the way markets function. Some cultures show more entrepreneurship and innovation than others (Lee and Peterson, 2000). Shane (1993) provides evidence of the mechanism that links the cultural characteristics of a country and its innovation rate. Westwood and Low (2003) claim that culture directly influences the initiation and implementation of innovation. According to Shane (1993), social changes must

occur to increase the innovation rates of a country. Williams and McGuire (2010), using a structural equation model on a sample of 63 countries, found that culture does influence countries' economic creativity. It is important to understand the national cultural factors that could influence organizational choices of companies and their innovation performance.

Culture

Hofstede (2001) defines culture as the collective programming of the mind that distinguishes the members of one human group from another, which comes close to the definition C1 of Klamer we had mentioned at the introduction. Clyde Kluckhohn (1951) defines culture as the collection of beliefs, values, behaviors, customs and attitudes that distinguish the people from one society from another. Researchers in the Global Leadership an Organizational Behavior Effectiveness (GLOBE) (House et al. 2004); Jagdeep and Chhokar,2007) project define culture as shared motives, values, beliefs, identities and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations.

Schwartz (2004) was intrigued by the role of values in culture and his guiding definition of culture reflected this concern. Culture was defined as a rich complex of meanings, beliefs, practices, symbols, norms and values. Schwartz argued that those values that could be identified as prevalent among the members of a society expressed the cultural ideals of society and that these ideals determined the central traits of the societal culture. Simplifying the ideas of Hofstede and Schwartz, Fons Trompenaars (1993), a cross-cultural consultant, defines culture as the way in which a group of people solves problems and reconciles dilemmas. Ann Swidler (1986), a sociologist of culture, viewed culture as a toolkit of symbols, stories, rituals and world views that help the people of a culture to survive or succeed. Clifford Geertz (1973), a cultural anthropologist, defines culture as the means (instruments, tools) by which people communicate, perpetuate and develop knowledge about attitudes towards life. Considering the extensive use of the research of Hofstede, the GLOBE and Schwartz by practitioners and consultants during the last decades in both theoretical and empirical literature, we can say that these authors have tried to include research intuitions of research communities in social sciences

– including the managerial ones. Therefore selecting their research-grounded approach for describing culture in the meaning used in this article can be defended on methodological grounds. Let us list the relevant dimensions of culture, which can be traced to the national differences in readiness to invent and implement inventions.

Cultural values of Hofstede

Power distance (PDI)

The degree to which the less powerful members of a society expect and accept that power is distributed unequally (Hofstede et al., 2010). The fundamental issue here is how a society handles inequalities among people. People in societies exhibiting a large degree of power distance accept a hierarchical order in which everybody has a place without further justification. In contrast, in societies with low power distance, people strive to equalize the distribution of power and demand justification for inequalities of power.

Power distance reveals to what extent power and hierarchical relations are considered essential in the given culture. It discloses the scope to which it is accepted that power in organizations and institutions is unequally allocated. A large power distance can be characterized by centralized decision structures and extensive use of formal rules. In the case of small power distance the chain of commands is not always followed.

It has been argued that bureaucracy reduces creative activity (Hurbig and Dunphy, 1998). In cultures that exhibit less power distance, communication across functional or hierarchical boundaries is more common (Williams ad McGuire, 2005), (Shane, 1993) this enables to connect different creative ideas and thoughts, which can then lead to unusual combinations and even radical breakthroughs.

In case of large power distance, sharing of information can be constrained by the hierarchy (Everdingen and Waarts, 2003). Innovation significantly depends on the spread of information, so one of the possible effects can be linked to a slowing down of the innovation process.

Tight control and detailed instructions make employees passive and restrict creative thinking (Shane, 1992). In small power distance is associated with more trust between different hierarchical levels. When employees believe that it is appropriate to challenge the status quo, creativity is higher. Societies with larger power distance tend to be more fatalistic and hence, have less incentive to innovate (Herbig and Dunphy, 1998). These arguments are supported by several previous studies about the relationship between innovation initiation and power distance. Shane's analysis (Shane, 1992) showed a negative correlation between the inventions patented and power distance. Later, Shane (1993) provided empirical evidence that power distance has a negative effect on the number of trademarks per capita. Williams and McGuire (2005) found that power distance had a negative effect on economic creativity in a country.

Individuals with higher internalized power distance values accept differences in status, authority and prestige more readily. In this vein, it was found that power distance has an inverse relationship to entrepreneurial activity (Trompenaars and Hampden-Turner, 2004). Similarly, Baum et al, 1993, states that individuals with higher power distance acceptance find it more difficult to start their own business. McGrath et al. (1992) found that entrepreneurs tend to have higher power distance values than career professionals because entrepreneurship is a vehicle to achieve higher status thus high power distant individuals attribute new venture generation as a means to improve their social status and achieve personal success. Higher power distance can motivate individuals to advance their own power.[5]

[5] A high score on this dimension reflects that hierarchical distance is accepted and those holding the most powerful positions are accepted to have privileges for their position. The management has full control, i.e. the boss is informed by his subordinates and makes the decisions accordingly. A lack of interest towards a subordinate would mean this one is not relevant in the Organization. At the same time, this would make the employee feel unmotivated. Since negative feedback is distressing, employees are discouraged to provide their boss with negative information. Power is centralized and managers don not count on the experience of their team members. Hence, employees are generally not consulted. The ideas of the management are being executed without any criticism from the employees. Employees expect to be told what to do. One could argue that if the management is visionary and professional, this speeds up the innovation, as no time is lost with consulting employees who are less visionary. However, the reverse could also be the case, as participation of professional employees in the innovation process can lead to more and better ideas and strengthen innovation.

My hypothesis is that there is a strong negative relationship between power distance and innovation initiation. Hence, reducing the power distance increases innovation.

Another hypothesis is that for people with entrepreneurial inspirations high power distance in society could be an incentive to start new venture if they consider value of attaining power positions and exploiting them.

Individualism versus collectivism (IDV)

This dimension, termed Individualism, can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of themselves and their immediate families only (Hofstede et al., 2010) In contrast, Collectivism, represents a preference for a tightly-knit framework in society in which individuals (reciprocally) expect their relatives or members of a particular in-group to look after them in exchange for unconditional loyalty. A society's position on this dimension is reflected in whether people's self-image is defined in terms of "I" or "we."

Innovation initiation, as opposed to the innovation implementation, is often seen as the act of an individual (Williams and Mc Guire, 2005): initial ideas emerge in the head of an individual and the group can either be supportive or not. Individualistic cultures value freedom more than collectivistic cultures (Herbig and Dunphy, 1998 and Shane, 1993'). Hence, in individualistic societies employees have more opportunities to try something new. Another important aspect is that in collectivistic societies, the contribution of an individual rather belongs to the organization. Williams and McGuire use the term 'economic creativity' for the first phase of innovation, while the second phase is termed 'innovation implementation'.

The framework of individualism-collectivism is particularly useful in explicating cultural differences in the conceptualization of creativity. Individualism refers to an emphases on self as independent and agentic, whereas collectivism refers to an emphasis on a group and the willingness to sacrifice for it (Hofstede, 1980; Triandis, 1996). In general, people in individualistic cultures are motivated to see the self as distinctive and hence to pursue uniqueness and novelty as a way to differentiate themselves to others. On the contrary

people in collectivist cultures are motivated to contribute to their in-groups and hence to target the generation of appropriate and useful ideas (Hempel and Sue-Chan, 2010; Morris and Leung, 2010). Considerable evidence supports the association of individualism with the emphasis on novelty and collectivism with the emphasis on appropriateness / usefulness.

In individualistic societies, individuals have more reasons than in collectivistic societies to expect compensation and recognition for inventive and useful ideas (Herbig and Dunphy, 1998 and Waarts and van Everdingen, 2005).

Also, there is less emphasis on loyalty to the organization in individualistic societies (Herbig and Dunphy, 1998), which promotes the information exchange necessary for innovation. Looking at previous results, Shane (1992) found a positive correlation between the inventions patented and individualism. In addition, Shane (1993) showed that individualism has a significant positive effect on the number of trademarks per capita. In the analysis by Williams and McGuire (2005) there appeared to be a positive effect of individualism on the economic creativity in a country. Taylor and Wilson (2012) found a statistically significant, strong and positive effect of Individualism on both scientific progress and technological innovation.

The more individualistic a country, the stronger its citizens' preference for freedom over equality. Freedom for the individual is an individualist ideal, equality a collectivist ideal. One could also say that collectivistic cultures are more in favor of freedom for the collective. Private opinions are important in an individualistic society. One could suggest that the IND scores relate to the national wealth but also to the economic growth of nations. However research findings show the reverse. The reverse causality, national wealth and growth causing individualism is more plausible. Countries which have achieved fast economic development have experienced a shift towards individualism (Hofstede et al., 2010).

We may expect that there is a positive relationship between individualism and innovation initiation.

Masculinity versus femininity (MAS)

The masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness and material reward for success. (Hofstede et al., 2010). Society at large is more competitive. Its opposite, femininity, stands for a preference for cooperation, modesty, discretion, tolerance, solidarity, caring for the weak and quality of life. Society at large is more consensus-oriented. Masculine societies are dominated by men and the "masculine" values – independence and career.

It has been proposed that masculinity has no effect on economic creativity (Williams and McGuire, 2005). This proposition is also confirmed by empirical evidence. Shane (1993) demonstrated that masculinity has no effect on the number of trademarks per capita. Williams and McGuire (2005) found no significant effect of masculinity on the economic creativity of a country. Nevertheless, there are some possible influences that have to be taken into account. In feminine societies the focus is on people and a more supportive climate can be found. A warm climate, low conflict, trust and socio-emotional support help employees to cope with the uncertainty related to new ideas (Nakata and Sivakumar, 1996).

One could argue that competition amongst employees leads to better performance. Standing out is a very important drive to excel. However, striving for consensus, humanization of work by contact and cooperation, and the important role of intuition in the innovation process might be equally important (Nakata and Sivakumar, 1996)

Based on the above, I expect a negative relationship between masculinity and creativity and the initiation of innovation. However there might be a positive relation between masculinity and the implementation of innovation due to the urge of economical achievement.

Uncertainty avoidance

The uncertainty avoidance dimension expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity Hofstede et al., 2010) The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the

future or just let it happen? Countries exhibiting strong uncertainty avoidance maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas. Weak uncertainty-avoidance societies maintain a more relaxed attitude in which practice counts more than principles.

Uncertainty avoidance deals with a society's tolerance for uncertainty and ambiguity; it ultimately refers to man's search for Truth. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, and different from usual. Uncertainty avoiding cultures try to minimize the possibility of such situations by strict laws and rules, safety and security measures, and on the philosophical and religious level by a belief in absolute Truth; 'there can only be one Truth and we have it'.

For example, in Germany there is a reasonable high uncertainty avoidance (65) compared to countries as Singapore (8) and neighboring country Denmark (23). Germans are not keen on uncertainty, which is illustrated by extensive planning to control or avoid uncertainty. The German society strongly relies on rules, laws and regulations. Germany wants to reduce its risks to the minimum and handle changes step by step.

High uncertainty-avoidance societies are less innovative but better in implementing new discoveries / new ideas and innovative findings successfully because they tend to be more precise and punctual thus avoiding uncertainty.

There is a strong case here for synergy between innovating cultures and implementing cultures/ the first supplying ideas, the second for developing them.

Regarding empirical evidence Shane demonstrated that uncertainty avoidance has a negative effect on the number of trademarks per capita (Shane, 1993). Williams and McQuire (2005) showed that uncertainty avoidance has a negative effect on the economic creativity of a country.

As innovations are associated with some kind of change and uncertainty, cultures with strong uncertainty avoidance can be more resistant to innovations (Shane, 1993; Waarts and van Everdingen, 2005)

Simon et al. (2009) also found that individuals who perceive lower levels of risks are more likely to engage in venture creation.

Openness to change demands low uncertainty avoidance, high level of creativity and a strong need for innovation. What is different is attractive!

Appendix 1: Consequences of high uncertainty avoidance.

There might be a negative relationship between uncertainty avoidance and innovation initiation, however the reverse could be true for the implementation phase of new discoveries / new ideas and innovative findings.

Long-term versus short-term orientation (LTO)

The long-term orientation dimension can be interpreted as dealing with society's search for virtue (Hofstede et al. 2010). Societies with a short-term orientation generally have a strong concern with establishing the absolute Truth. They are normative in their thinking. They exhibit great respect for traditions, a relatively small propensity to save for the future, and a focus on achieving quick results. In societies with a long-term orientation, people believe that truth depends very much on situation, context and time. They show an ability to adapt traditions to changed conditions, a strong propensity to save and invest thriftiness, and perseverance in achieving results.

For this reason I expect a positive relationship between long-term orientation and innovation strength.

Indulgence versus Restraint (IVR)

Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms (Hofstede et al., 2010).

Statistically there is a significant, yet weak positive relationship between indulgence and national wealth (Hofstede et al., 2010).

A (small) positive relationship between indulgence and innovation strength could be expected.

Monumentalism vs. Self-effacement

Monumentalism stands for a society which rewards people who are, metaphorically speaking, like monuments: proud and unchangeable. Its

opposite pole, Self-Effacement, stands for a society which rewards humility and flexibility (Hofstede et al.,2010).

My hypothesis is that there is a negative relationship between Monumentalism and innovative strength.

Cultural values of The Globe

The GLOBE expanded the seven Hofstede dimensions to nine (House et al, 2004. Jagdeep and Chhokar, 2007.) It maintained the values power distance and uncertainty avoidance. It split collectivism into institutional collectivism and in-group collectivism and masculinity-femininity into assertiveness and gender egalitarianism. Long term orientation was replaced by future orientations. The Globe added two more dimensions, also inspired by the Hofstede masculinity-femininity distinction: human orientation and performance orientation. (Hofstede et al., 2010).

Uncertainty avoidance

The extent to which a collective relies on social norms, rules and procedures to alleviate unpredictability of future events.

GLOBE's uncertainty avoidance is no alternative for Hofstede's Uncertainty Avoidance (UAI). It is primarily correlated with Hofstede's Power Distance (PDI).

Power distance

The degree to which members of a collective expect power to be distributed equally.

In the GLOBE study the questions to the respondents were formulated very differently from Hofstede's questions. The GLOBE's power distance correlated more strongly with Hofstede's uncertainty index. GLOBE's power distance presents no alternative for Hofstede's power distance (Hofstede et al., 2010).

Institutional Collectivism

The degree to which institutional practices encourage and reward collective distribution of resources and collective actions.

GLOBE's Institutional collectivism is exclusively related with Hofstede's Uncertainty avoidance index (UAI) (Hofstede et al., 2010).

In-Group Collectivism

The degree to which individuals express pride, loyalty and cohesiveness in their organizations and families.

In-Group Collectivism "as is" is very much related with Hofstede's Individualism versus collectivism (IDV); it is also the strongest correlated GLOBE's dimension for Hofstede's PDI (Hofstede et al., 2010).

Future orientation

The extent to which individuals engage in future oriented behaviors such as delaying gratification, planning and investing in future.

GLOBE's future orientation 'as is" meant to express long-term orientation, doesn't correlate with either Hofstede's measures of LTO but did with a combination of low Uncertainty avoidance and low Power distance. There is a negative relation between GLOBE's future orientation and Hofstede's long-term orientation. (Hofstede et al., 2010).

Human orientation

The degree to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring and kind to others.

Strange enough GLOBE's dimension human orientation produces no significant correlation nor positive and negative with Hofstede's dimension Masculinity versus femininity. Hofstede doubts whether this Globe dimension makes any sense at all. (Hofstede et al., 2010).

Assertiveness

The degree to which individuals are assertive, confrontational and aggressive in their relationships with other.

There is a significant correlation between this GLOBE dimension and Hofstede's dimension Masculinity versus femininity (MAS). (Hofstede et al., 2010).

Performance orientation

The degree to which a collective encourages and rewards group members for performance improvement and excellence.

Performance orientation "as is" correlates negatively with Hofstede's dimension Uncertainty Avoidance. Performance orientation "should be" correlates negative with Hofstede's dimension Long –term orientation. (Hofstede et al., 2010).

Gender Egalitarianism

The degree to which a collective minimizes gender inequality.

Gender equality has a lot to do with women's educational level, which strongly relates to national wealth and therefor indirectly to individualism. This GLOBE's dimension is not correlating with Hofstede's dimension Masculinity versus femininity (Hofstede et al., 2010).

Cultural values of Schwartz

The 10 personal values (Schwartz, 1999 and 2004)

Power

This takes value from social status and prestige. The ability to control others is important and power will be actively sought through dominance of others and control over resources.

This value is closely related with Hofstede's dimension Power distance. We already concluded that there is a negative relationship between power distance and innovation initiation.

Achievement

Value here comes from setting goals and then achieving them. The more challenge, the greater the sense of achievement. When others have achieved the same thing, status is reduced and greater goals are sought. Key words are capable, ambitious, successful, intelligent and self-respect.

The urge and ambition to achieve and to be successful, as well as setting goals positively correlates positively with innovation initiation and innovative strength.

Hedonism

Hedonists seek pleasure above all things and may, according to the view of some critics, sink into excess and debauchery. Theoretically, the fact that people feel free could positively influence innovation, but there is no clear evidence that hedonism leads to more innovation.

Stimulation

The need for stimulation is close to hedonism, though the goal is slightly different. Pleasure here comes more specifically from excitement and thrills and a person with this driver is more likely to be found doing extreme sports than propping up a bar.

Key drivers for this dimension are Excitement, novelty and life challenges. Daring, varied life and excited life are the key words.

One may conclude that a high score on stimulation has a positive relation with innovation initiation and innovative strength.

Self-direction

Those who seek self-direction enjoy being independent and outside the control of others. The prefer freedom and may have a particular creative or artistic bent, which they seek to indulge whenever possible.

Feeling independence of thought and decision, exploration of creativity, being curious, choosing own goals and outside control of others might have a positive relation with innovation initiation and innovative strength.

Universalism

The Universalist seeks social justice and tolerance for all. Caring about welfare of all people and nature is are important values. They promote peace and equality and find war anathema except perhaps in pursuit of lasting peace.

Key words are open mind, broad-minded, social justice, equality, world peace, unity with nature, inner harmony sand protect environment.

Universalism might have a positive effect on innovative strength particularly in finding sustainable solutions in areas of food production and processing, energy supply, sustainable use and re-use of raw materials, fair-trade etc.

Benevolence

Those who tend towards benevolence are very giving, seeking to help others and provide general welfare. They are the 'earth mothers' who nurture all.

Key words are helpful, honest, forgiving, loyal, responsible, true friendship, mature love.

Of course these values could facilitate process of innovation but are not the key drivers for it.

Tradition

The traditionalist respects that which has gone before, doing things simply because they are customary. They are conservatives in the original sense, seeking to preserve the world order as is. Any change makes them uncomfortable.

This Schwartz value is related with Hofstede's value uncertainty avoidance of which we already concluded that there is a negative relationship with innovation initiation.

Conformity

The person who values conformity seeks obedience to clear rules and structures. They gain a sense of control through doing what they are told and conforming to agreed laws and statutes.

This Schwartz value is related with Hofstede's value uncertainty avoidance and to some degree with power distance which both have a negative relationship with innovation initiation.

Security

Those who seek security seek health and safety to a greater degree than other people (perhaps because of childhood woes). Though they may worry about the potential of military force, they welcome the comfort that their existence brings.

Also this value is related with Hofstede's uncertainty avoidance and is negatively related with innovation initiation however the reverse is true for the implementation phase of new discoveries / new ideas and innovative findings.

Super-grouping

Note how these values form something of a spectrum, with successive values often having a close relationship. This is perhaps unsurprising as they are groupings of a larger number of values. They can also be collated into larger super-groups:

- *Openness to change:* Stimulation, self-direction and some hedonism.
  Very positive correlation with innovative strength
- *Self-enhancement:* Achievement, power and some hedonism.
  Both positive correlation (achievement) and negative correlation (power)
- *Conservation:* Security, tradition and conformity.
  Very negative correlation with innovative strength
- *Self-transcendence:* Universalism and benevolence.
  Positive correlation with innovative strength especially in relation with sustainability

The three bi-polar dimensions (Sagiv and Schwartz, 2007)

Harmony vs Mastery

Our place in the world and society: is it our role or duty to actively shape (change) the world, or is our role to fit into the system, allowing change to occur?

Harmony, accepting the world as it is, trying to fit in rather than to change or exploit it unity with nature and conflict avoiding attitude will not necessarily lead to high innovative strength.

Mastery, a cultural emphasis on getting ahead through active self-assertion (ambition, success, daring competence) will probably lead to innovative strength.

Intellectual Autonomy vs Traditionalism.

Where our ideas stem from: an intellectual independence and creativity or embeddedness in social groups or traditions?

Intellectual Autonomy meaning feeling independence of thought and decision, exploration of creativity, being curious, choosing own goals and outside control

of others will have a positive relation with innovation initiation. This was also found by Taylor and Wilson (2012).

Traditionalism. A cultural emphasis on maintenance of the status quo, propriety, and restraint of actions or inclinations that may disrupt the solidarity group or traditional order (social order, respect for tradition, family security) will not lead to high creativity and will have a strong negative relationship with innovation initiation.

Hierarchy vs Egalitarianism

Distribution of power and responsibility: Should power be sanctioned to maintain order (top down, unequal distribution) or should bottom up voluntary cooperation lead to equality and freedom?

Hierarchy: a cultural emphasis on the legitimacy of an unequal distribution of power, role and resources (social power, authority, humility, wealth) very much related to the Hofstede's value power distance of which we already concluded that there is a strong negative relationship with innovation initiation.

Egalitarianism: a cultural emphasis on the transcendence of selfish interest in favor of voluntary commitment to promoting the welfare of others (equality, social justice, freedom, responsibility, honesty) will have a positive relation with innovative strength.

For more detailed discussion of the impact of cultural values upon innovative strength of groups sharing these values, see the appendix 2: Cultural values and their impact on innovative strength, a tentative assessment

The above list of identified cultural factors has been derived from Hofstedian and related approaches to culture. The concept of culture assumed by the abovementioned authors can be summarized as C1 in the theory of Klamer. In other words, Hofstede and these authors assume a definition of culture as a sort of a cultural software, which usually attributed to cultural anthropology. Non-anthropological definitions of culture rely on a more sociological, socio-psychological and organizational theory approach or on information systems analysis approach (culture as knowledge asset in organizational communications). Let us now turn to these theories of culture in order to make our analysis of the influence of cultural values upon creativity more robust and multidimensional.

4.3 Non-Hofstedian approaches to culture's consequences: Culture as a knowledge asset, organizational culture and management style.

A comparison of the theories of culture as information space by Boisot and the theories of culture as organizational software by Cameron and Quinn

Introduction

Technology has been treated by many anthropologists as an extension of culture. Much of what we call technology is knowledge physically embodied in objects that you can touch or physically manipulate. When we deal with cultural influences, which had not been embodied in technology, culture's influence upon material actions is more difficult to trace. Only a small part of what we call cultural knowledge becomes embedded in technologies and artifacts. A large part is embodied in social processes, institutional practices and traditions, many of which are carried around in people's heads, but are not readily retrievable and comparable.

In recent years our appreciation of culture as a knowledge asset has undergone a transformation. The rise of Japan as a world class competitor over the last three decades has brought home Western managers that much of the managerial and technological knowledge that they have taken as universal in its implication is often in fact specific to a culture and draws on deeply rooted and value-laden assumptions of how organizations and institutions function. It can be adopted and sometimes improved upon but only with considerable prior investment in cross-cultural understanding and adaption.

> The Western bias towards classifying as knowledge only that which can be given codified and abstract formulation, has led knowledge assets, whether embodied in physical objects such as a plant or machinery, or in organizational practices such as planning and budgeting systems, to be treated as if they were essentially technological in nature. They are not. They are first and foremost cultural and only secondly technological. The potential value of a knowledge asset is largely a function of how it is used and in what context. A proper understanding of the context, social or otherwise, is thus essential to the proper application of any given technique and of technology in general.

Cultural evolution is deeply affected by the technical means available for the social articulation and transmission of knowledge, as noticed by Boisot who conceptualized his intuitions in the model of information space. These technical means may lead to more complex and stratified structures of information processing and knowledge management, which have an influence on the sharing of information and knowledge and their uses in organized activities.

The Information-Space as defined by Boisot (2010)

In many definitions of culture the structuring and sharing of information within a population distributed across space and time is a central ingredient (Kroeber, A, Kluckhohn, 1952). For this reason the Information Space as defined by Boisot in his book Knowledge Assets (Boisot, 2010) lends itself to a study of cultural transmission. Here, the structuring of information is captured by codification and abstraction dimensions of the Information – Space and the sharing of information is captured by the diffusion dimension. Central to the idea of using the Information-Space in their way is the observation that cultures vary in their ability to structure and process knowledge through organizing and institutionalizing and hence in their spatio-temporal reach. The

way that knowledge assets distribute themselves in the Information-Space and the trajectories of the Social Learning Cycles that bring them into being are both profoundly affected by cultural considerations and how these are expressed in stable institutional structures. Boisot describes four different types of transactions in the Information-Space: Bureaucracies, Markets, Fiefs and Clans.

Bureaucracies

Bureaucracies operate on a precise principle of a "need-to-know" as the basis of knowledge hierarchy, that is, on the controlled diffusion of well codified narrative and abstract-symbolic information to selected players within a given population. In bureaucracies the information is well codified and abstract, but its diffusion is strictly regulated by the operation of hierarchy. The pyramidal structure of an organizational hierarchy offers superiors a strategic information advantage which can be converted into power over subordinates. In this type of transactions relationships are impersonal and hierarchical, there is a hierarchical coordination and no necessity to share values and beliefs. Looking at Boisot through the lenses of Hofstede, we may say that High Power distance and high uncertainty avoidance are important cultural dimensions in bureaucracies. France, Spain, Italy and Portugal score high on these dimensions. As we noted earlier these cultural dimensions negatively influence their innovative strength. Finland also belongs to the bureaucratic region rather than the market region of the Information-Space but for another not strictly cultural but more political reason: a greater role is reserved for the state in contractual relations.

Markets

Also in Markets the information is also codified and abstract. However, as opposed to bureaucratic hierarchy, market allows information to be widely diffused. It is available to all market players, there is no control restricting its circulation. This makes the system largely self-regulating; the relationships are impersonal and competitive. There is a horizontal coordination through self-regulation and there is no necessity to share values and beliefs in order to enter relations of exchange. The information environment of a pure market

transaction requires codification, abstraction and diffusion of all relevant data. Organizations and employees are free to pursue individual objectives. Low power distance, low uncertainty avoidance, high individuality and high masculinity are important dimensions in organizations described by Boisot under the label of Markets. As such the dominant UK type of business company could be placed in the market region of the I space. Cultural dimensions of market organizations in I-space favor innovative strength (though the influence of high masculinity score is more ambiguous). Following Boisot we could put Sweden in between the bureaucratic and the market region of the Information-Space.

Fiefs

Fiefs reflect the charismatic power granted to one or two individuals on the basis of uniquely situated, that is concrete and uncodified knowledge that they are bound to possess. Their knowledge is hard to articulate, codify, abstract and share. In Fiefs the information is uncodified and concrete. The information diffusion is limited by lack of codification and abstraction. Charismatic leaders function in face-to-face contexts (typically for instance for family companies and limited number of individuals). Relations are (very) personal and hierarchical (with charismatic legitimation of authority). There is a submission to superordinate goals and hierarchical coordination. There is a high necessity to share values and beliefs. The personalized relationship between team members is essential to the building up of a sense of shared values and trust between them and essential to the very personal authority of the team leader. The power she wields over her team is of a very intangible kind based on professional ability and personal qualities. This is charismatic authority. It creates disciples rather than subordinates and its power to command obedience depends on the existence of personal loyalty based on trust and shared values rather than, as with bureaucratic authority, on the ability to coerce. The team and the leader may share the same scientific objectives, but these may well be personal to the leader herself and express her own long-term professional aspirations. Collectivism (joined values and mutual trust, strong interpersonal relations) are important cultural values within the team or organization, however the large power distance in fiefs

position could also be an obstacle for members of a research team to openly communicate new creative ideas to the management. Among the European countries, Portugal possesses cultural values corresponding to the positioning of business organizations in the fiefs region of the I-Space

Clans

Clans develop on the basis of concrete experiences and tacitly held values that arise within small groups in a given population. In Clans the information is uncodified and concrete; it is more diffused than in fiefs, but remains still limited by lack of codification and abstraction, and by focus on face-to-face relationships. The relationships are personal but not hierarchical. Goals are shared through process of negotiations between paired clan representatives. Horizontal coordination can be achieved through negotiations in which politics and personal power may sometimes weigh more than rational deliberation. There is a necessity to share value and beliefs. The need for common values and the uncodified nature of the information shared by the participants tend to limit the number of players to what can be handled in face-to-face relationships, so that oligopoly rather than pure competition ensues. Entry is restricted and individual players are expected to observe the “club-roles” When entry is not restricted and the number of players increases - clans tend to break down. The uncodified norms and values that act as a social cement to clan elites in organizational world - lose their power to bind. Also clans can be considered as strong collectives. The clan position is ideal for the initiation of new ideas and inventions. The Netherlands, being a network economy with regent-like elite formation could be found in the clan region of the I-Space. The same holds, mutatis mutandis, for Denmark.

Positioning in the Information-Space at a national level

Typically cultures, corporate, industrial, and national, mix these different transactional forms so that the resultant institutional order must be described as a configuration that blends together markets, bureaucracies, clans and fiefs. What makes a national culture distinctive is how it enables or hampers positioning of business companies in the I-space and how the influence of national culture distributes transactions in the Information-Space.

There is strong evidence that national culture and institutions play a part in predisposing firms to transact from a given region in the Information-Space. National values and beliefs influence socialization practices, legal frameworks and economic behavior patterns in ways that strongly skew the distribution of transactions in the Information-Space. US culture, for example, with its strong preference for competitively determined contractual relations is a plausible candidate for assignment to the market region of the space. French culture on the other hand although equally committed to the role of law accords a greater rule to the state in contractual relations and tends to put the country in bureaucratic rather than in the market region. In the UK citizens prefer contractual relations with each other without interventions of the state. Both China and Japan, by contrast, exhibit a strong cultural preference for more informal, personal and tacit forms of exchange, China being more centralized than Japan. China tends to apply for the fiefs region of the Information-Space whereas Japan could be positioned in the Clan region. A tentative assignment of European countries would put Germany somewhere in between the market and the bureaucratic region, Italy in the clan region, Spain in between the bureaucratic, market and the clan region, Portugal in between the fiefs (small companies) and bureaucratic (larger companies and public organizations) region, The UK in the market region, the Netherlands in between the market and the clan region, Denmark in the clan and market region, Finland in the bureaucratic region and Sweden in between the market and the bureaucratic region. As mentioned before every nation and corporation mix different transaction forms, however culturally countries and corporations tend to prefer certain regions in the Information-Space. This preferred positioning is related to cultural dimensions of countries and corporations. National culture influences organizational culture and -structure and leadership and management style. To establish the impact of cultural values on organizational culture and leadership characteristics and there interrelations which are important for competitive advantage in innovation is the very aim of my research.

Positioning of different functional departments of a firm in the Information-Space

Different units in a company operate in different information environments and according to the distinctive values and beliefs in the different functional departments this leads to different preferred positions in the Information Space.

Production environment - Bureaucracies

They operate in the production environment. It is about continuous repetitive processes. The information is well codified and abstract, but its diffusion is strictly regulated by the operation of hierarchy.

Marketing and sales - Markets

Sales is optimally stimulated in a market region of the Information-Space. It is about modular systems. The information is codified and abstract, however the information is widely diffused and for anybody available, there is no control. This makes the system largely self-regulating; the relationships are impersonal and competitive.

Initiation of innovation - Fiefs

You may find a fief structure in the first phases of the initiation of innovation. Fiefs reflect the charismatic power granted to one or two individuals on the basis of unique situated, that is concrete and uncodified knowledge that they are deemed to possess but is hard to articulate and share. The information diffusion is limited by lack of codification and abstraction to face-to-face leadership. Relations are (very) personal and hierarchical / charismatic. The large power distance in the Fief structure may be an obstacle for the creation and development of new ideas for this reason I do not support the idea of Boisot that a fief structure would be ideal for innovation.

Scientific Research and Development and Strategy development - Clans

Scientific Research and Development and Strategy development many time takes place in a the clan region of the Information-Space. In Clans the information is uncodified and concrete; it is diffused but still limited by lack of codification and abstraction to face-to-face relationships. Information is still

open for interpretation and therefore can lead to different outcomes of the decision making process. The relationships are personal but not hierarchical. Goals and strategies are finally shared through process of negotiations between pairs.

It is important that different functional departments of business companies have good communication and cooperation lines with other relevant organizations, institutions and networks. The (necessary) cultural variety within a firm could cause miscommunication without coherent management. This could lead to strategies which are less responding to the needs of markets or to innovations which are not distinctive enough and can be quickly copied by competition. A concentrated effort to standardize, meanwhile reducing production cost, could cause an erosion of margins due to a lack of distinctiveness in the industry. Awareness of cultural variety is important to boost the creativity and innovation, producing products and services efficiently and marketing them successfully. This poses the problem of complexity at the more strategic level, that of the system as a whole. As mentioned before, the cultural values of a country are getting reflected in preferred management of knowledge assets and thus impact the preferred position of national business companies in the Information-Space. But what happens if values clash and conflict, differ and compete?

The Competing Values Framework (CVF) as defined by Cameron and Quinn

The CVF evolved out of research to determine the key factors of organizational effectiveness. There is a great analogy between the Cameron/Quinn theoretical construct and the theoretical framework of Boisot – and it is fairly surprising that researchers failed to notice it so far. This analogy should become clear as I describe CVF further. CVF research initially yielded a comprehensive list of 39 possible indicators to measure effectiveness. Quinn and Rohrbaugh (1983), working through factor analysis, condensed this list into a more parsimonious set of two major dimensions, which defined four major quadrants representing opposite and competing assumptions. The first dimension ranges from flexibility and discretion on one end, to stability and control on the other. The second dimension measures the degree to which the organization emphasizes

internal focus and integration or external focus and differentiation (Cameron & Quinn, 2006). The four major quadrants defined by these two axes were originally labeled the Human Relations Model, the Open System Model, the Internal Process Model, and the Rational Goal Model (Quinn & Rohrbaugh, 1983). These respective quadrants have alternatively been labeled as the group, developmental, hierarchical, and rational cultures (Denison & Spreitzer, 1991); collaborate, create, control, and compete (Cameron et al.,2006); and also clan, adhocracy, hierarchy, and market cultures (Cameron & Quinn, 2006). In this study, I will opt for the latter nomenclature.

Cameron and Quinn describe four different types of organizational cultures: Clan, Adhocracy, Hierarchy and Market. The organizational culture has consequences for the preferred leadership style.

Clan

The clan culture is like an extended family. This type of organization emphasizes teamwork, employee involvement, empowerment, cohesion, participation, corporate commitment to employees, and self-managed work teams. It is held together by loyalty and tradition. In this context, leaders are thought of as mentors or parent figures. Their main responsibilities are to empower employees, and facilitate their participation, commitment, and loyalty (Cameron & Quinn, 2006). This culture type is very similar to the fiefs culture as described by Boisot.

Adhocracy

The adhocracy culture has an external focus and is differentiated. It is a dynamic, entrepreneurial, and creative organization. This organization thrives in an uncertain, ambiguous, and turbulent environment. The common values are innovation, flexibility, adaptability, risk taking, experimentation, and taking initiative. Leaders are also expected to be visionary, innovative, and risk oriented (Cameron & Quinn, 2006). Adhocracy as defined by Cameron & Quinn has a lot in common with the clan culture type as defined by Boisot. The latter more focusing on the uncodified and concrete character of the information and it's still limited diffusion and Cameron and Quinn describing the characteristics of the adhocracy organization itself.

Hierarchy

The hierarchy culture is a formalized and structured bureaucracy. It is focused at stability and control. This culture values efficiency, reliability, predictability, and standardization. Fast and smooth operations are maintained by strict adherence to the numerous rules, policies, and procedures. The employees throughout the multiple hierarchical levels have almost no discretion. Leaders in this organization are expected to be good organizers and coordinators, and minimize costs (Cameron & Quinn, 2006). The hierarchy culture of Cameron and Quinn is the bureaucracy culture in the information space of Boisot.

Market

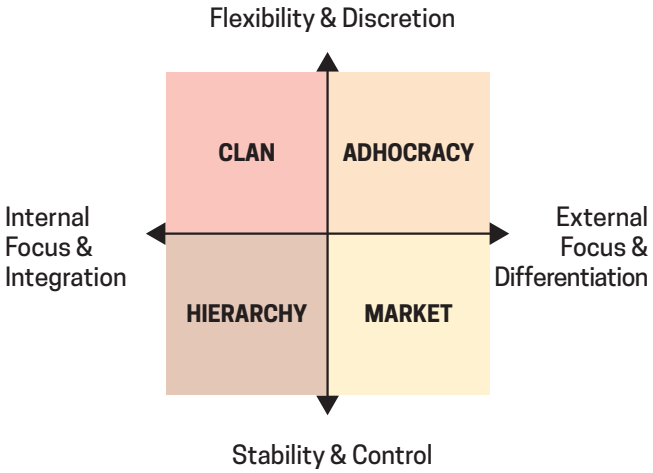
The market culture is fiercely competitive and goal oriented. They focus on productivity, profitability, market share and penetration, and winning. Leaders in this culture are expected to be hard driving, tough, and demanding competitors (Cameron & Quinn, 2006). Following Boisot, the information environment of a pure market transaction requires codification, abstraction and diffusion of all relevant data. Organizations and employees are free to pursue individual objectives. In this respect Cameron & Quinn and Boisot describe the same culture type.

One culture is not necessarily better than the others. The proper culture for each organization depends on the organization's industry and strategy. For example, Gregory et al. (2009) found a positive relationship between clan cultures and patient satisfaction in healthcare facilities. Some early research also indicated that in a university setting, clan cultures scored higher on student educational satisfaction, student personal development, faculty and administrator employment satisfaction, and organizational health (Cameron & Freeman, 1991). However, a different study found that organizational effectiveness in institutions of higher education was highest in organizations that emphasized both the adhocracy and hierarchy cultures (Cameron et al., 2006).

A tool known as the Organizational Culture Assessment Instrument (or OCAI) is used to determine the organization's dominant culture. The OCAI contains 6-24 items, each with four alternatives. The respondents rank each of the four alternatives using an ipsative rating scale, that is, they divide 100 points among

the four alternatives. This leads to greater differentiation than using a Likert scale because it forces respondents to tradeoff between the alternatives, rather than allow them to rate each alternative highly (Cameron & Quinn, 2006). It was found that most organizations have developed a leading culture style. An organization rarely has only one culture type. Time and again, there is a mix of the four organizational cultures. Cameron and Quinn made four quadrants corresponding with the four organizational cultures that differ deeply on these two dimensions:

- Internal focus and integration vs. External focus and differentiation
- Stability and control vs. Flexibility and discretion



To the left in the graph, the organization is internally centered (what is important for us, and how do we want to work?), and to the right, the organization is externally focused (what is valuable for the outside world, the clients, and the market?).

At the top of the graph, the organization desires flexibility and discretion, while at the bottom the organization values the opposite: stability and control..

Application to the Individual/Behavioral Complexity

Once the organization's dominant culture has been established, then the individual manager needs to discover his or her own dominant leadership style in order to reflect on the most promising strategy for innovation managed

with his style and within the recognized organizational context. The most effective way to determine one's own dominant leadership style is to use the Managerial Behavior Instrument (MBI), which has been shown to correlate to the quadrants of the CVF (Lawrence et al., 2009). This instrument by the form of a questionnaire should be completed, not only by the manager in question, but also by the manager's peers, subordinates, and supervisors. The data from the completed instruments are compiled into a single feedback report which indicates strengths and weaknesses in the manager's ability to demonstrate leadership styles consistent with the four quadrants of the CVF. Cameron and Quinn (2006) have found that the most effective managers—those rated as most successful by their subordinates, peers, and superiors and those who tend to rise quickly in the organization—demonstrate a leadership style that matches that of their organization's dominant culture. However, it seems that this is a minimal measure of effectiveness, rather than an ideal.[6]

For more on the relationship between values and leadership style according to CVF theory, see appendix 3. Organizational Culture Assessment Instrument (OCAI), the Competing Value Framework (CVF) and Leadership style.

[6]There is a growing body of research which supports the idea that the best managers are those that can display all four managerial styles in turn, contingent on the current situation. This is known as behavioral complexity. Numerous studies confirm that leaders who can balance competing roles are evaluated more highly for their effectiveness and for other performance measures (Bullis, Boal, & Phillips, 1992; Denison, Hooijberg, & Quinn, 1995; Hart & Quinn, 1993; Hooijberg, 1996) while still maintaining a measure of behavioral integrity and credibility (Cameron et al., 2006; Denison et al., 1995). Tsui (1984) supported the idea that leaders with behavioral complexity are better able to meet multiple and competing demands of the organization, and Weick (2003) also found that these leaders have greater adaptability. Recent research also shows that behavioral complexity has a significant effect on performance of self-managed teams (Zafft, Adams, & Matkin, 2009). Therefore, it is obviously beneficial to the organization to have managers high in behavioral complexity. Lawrence et al. (2009) developed the CVF Managerial Behavior Instrument to measure behavioral complexity and predict managerial effectiveness. The need for managers who can balance leadership behaviors is especially important during periods of organizational transition and change (Belasen & Frank, 2008).

Leading Strategic and Cultural Change

"The 21st century may very well become known as the century of the global world" (House et al., 2004, p. 3). Globalization is making business more complex, and professionally demanding. There is an increase in risk and uncertainty caused by the virtual disappearance of boundaries between countries and regions on the global competitive map (Kluyver & Pearce, 2006). The strategies that worked in the past are no longer guaranteed to produce satisfactory results. Organizations need to adapt to the changing conditions globalization has created. Change is inevitable; the only uncertainty is whether this change will be random or planned. Leaders need to be change agents.

Leading change especially if innovations and their risks are at stake is extremely challenging. Many companies have tried to implement change strategies, such as TQM initiatives, downsizing, and reengineering. However, according to various surveys, only 20% of companies achieve success with quality objectives, nearly 75% were found to be worse off in the long term after downsizing, and 85% of firms reported little or no gain from reengineering efforts (Cameron & Quinn, 2006). Many of these failures were likely caused by a failure to adequately align the organizational culture with the change effort. Schein (1985) noted that a culture which is rooted in deeply held, underlying assumptions and strategies that are incompatible with these assumptions will be resisted. Kluyver and Pearce (2006) recognized that organizational culture can inhibit or defeat a change effort. Cameron and Quinn argued that organizational culture change must occur before other initiatives can be successful. Therefore, leadership teams need to plan for organizational culture change in tandem with any major strategic realignment. The CVF is well suited for this task and fits naturally with strategic planning because, when used in culture change sessions, it gives the participants a model through which they can express their need for change, while at the same time discover why they themselves may be resistant to the very change they are planning (Hooijberg & Petrock, 1993). Actual implementation of OCAI diagnostics and an attempt to account for CVF when managing organizational inventiveness and change can best be observed by examining statistical data collected within studies focused on global innovation index.

4.4 The performance of countries in innovation: a comparative review of selected EU countries

4.4.1. The Global Innovation Index

The Global Innovation index (Dutta S, 2015, INSEAD) is calculated on basis of 27 indicators covering 7 dimensions of innovation. The first 5 relating to innovation inputs and the last 2 relating to the outputs and effects of innovation.

Following the Global Innovation Index of 10 selected European Union (EU) countries we observe that the UK turns out to be the most innovative, followed by Sweden, the Netherlands, and Finland.

See for detailed results Appendix 4. Table A2. The position on the Global Innovation index (2015) of 10 European countries.

Overall results of the selected 10 European countries.

UK, Sweden, the Netherlands and Finland score high (scores from 2 to 6)

Denmark and Germany score average (scores of respectively 10 and 12)

France, Spain, Italy and Portugal score low (scores from 21 to 31)

Rank on Global Innovation Index and relative high and low scores of the selected countries.

Table 1 ▪ The scores of the selected countries

COUNTRY	RANK OUT OF 143	RELATIVE HIGH SCORE	RELATIVE LOW SCORE
UK	2	Market Sophistication	Business Sophistication and Institutions
Sweden	3	Knowledge and Technology Outputs	Market Sophistication
Netherlands	4	Creative Outputs	Human capital & Research and Market Sophistication
Finland	5	Human Capital and Research and Institutions (superior)	Market Sophistication

Denmark	10	Human Capital & Research and Institutions	Infrastructure
Germany	12	Human Capital & Research and Knowledge and Technology Outputs	Market Sophistication and Business Sophistication
France	21	Human Capital & Research and Infrastructure	Market and Technology Outputs
Spain	27	Market Sophistication and Infrastructure	Business Sophistication
Portugal	30	Human Capital & Research, Institutions and Creative Outputs	Business Sophistication
Italy	31	Knowledge and Technology Outputs and Infrastructure	Creative Outputs

The global innovation index ranking should be compared to the ranking according to the number of patent applications and the number of patents granted, and to a number of other indicators of innovation-enhancing policies, which is what we are going to do next.

4.4.2 Patent applications to the EPO and patents granted by the USPTO, 2001-2010 (European Commission Eurostat, 2012))

Patent applications in the European Union (EU). Intellectual property rights, in particular patents, provide a link between innovation, inventions and the marketplace. Applying for a patent makes an invention public, but at the same time gives it protection; from a consumers perspective it may be argued that patent protection motivates the invention of new goods and services but at the same time may slow down the diffusion of new technologies, techniques and products. A count of patents is one measure of a country's inventive activity and also shows its capacity to exploit knowledge and translate it into potential economic gains. In this context, indicators based on patent statistics are widely used to assess the inventive and innovative performance of a country.

In the country ranking of the selected 10 European countries Sweden performs best followed by Germany, Denmark, The Netherlands, France, the UK, Italy, Spain and finally Portugal. Of Finland is no information available.

See further Appendix 5: Country ranking of my country selection (patent applications to the EPO per million inhabitants 2010)

4.4.3 Expenditure and financing of research and development (Eurostat, 2013)

One of the five headline targets of Europe 2020 Strategy is to achieve an R&D intensity (R&D expenditure as a percentage of GDP) of 3 % in the EU. In 2011, R&D intensity in the EU-27 stood at 2.03 %. Despite an increase on the 2010 figure (2.01 %), it was below the figures recorded in Japan (2009: 3.36 %), South Korea (2010: 4 %) and the United States (2009: 2.87 %), but higher than in China (2009: 1.7 %)

For Expenditure in R&D of EU member states see appendix 6

4.4.4 The European Innovation Scoreboard (EIS) (Hollanders Hugo and Es-Sadki Nordine, European Commission, 2014)

The EIS is a statistical instrument developed at the initiative of the European Commission in the framework of the Lisbon Strategy to provide a comparative assessment of innovation performance of the EU member States and the relative strengths and weaknesses of their research and innovation systems. It helps Member States assess areas in which they need to concentrate their efforts in order to boost their innovation performance.

For a more detailed explanation of the European Innovation Scoreboard see appendix 7

Results of comparative studies of the innovation performance within member states at a European level

The performance of EU national innovation systems is measured by the Summary Innovation Index, which is a composite indicator obtained by an appropriate aggregation 25 indicators. It is based on the European Innovation Scoreboard.

As a result the Member States fall into the following four performance groups:

Innovation leaders

To these Member States the countries belong in which the innovation performance is well above that of the EU, i.e. more than 20% above the EU average. These are Denmark, Finland, Germany and Sweden, which confirms the top position of these countries as compared with last year's edition of the Innovation Union Scoreboard.

Innovation followers

This group includes Member States with a performance close to that of the EU average i.e. less than 20% above, or more than 90% of the EU average. Austria, Belgium, Cyprus, Estonia, France, Ireland, Luxembourg, Netherlands, Slovenia and the UK are the Innovation followers.

Moderate innovators

Member States where the innovation performance is below that of the EU average at relative performance rates between 50% and 90% of the EU average. Croatia, Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia and Spain belong to the group of Moderate innovators.

Modest innovators

Member States that show an innovation performance level well below that of the EU average, i.e. less than 50% of the EU average. This group includes Bulgaria, Latvia, and Romania.

Performance at a national level

UK

The United Kingdom is an Innovation follower. After a decline in 2008 performance improved strongly in 2009 and in 2010, in particular due to increases in Innovative SMEs collaborating with others. Since 2010 performance has been stable with a small decline in 2013. The performance relative to the EU has declined from almost 120% in 2006 to 111% in 2013.

Relative strengths for the United Kingdom are in International scientific co-publications, Innovative SMEs collaborating with others and new doctorate

graduates. Relative weaknesses are in Sales share of new innovations and SMEs with Product and/or Process innovations.

Performance in terms of growth has improved most for Innovative SMEs collaborating with others and International scientific co-publications. Strong declines in growth are observed in Sales share of new innovations and SME´s with Product and/or Process innovations.

Sweden

Sweden is an Innovation leader. Innovation performance has been increasing until 2012 but slightly declined in 2013, in particular due to declining venture capital investments. The performance relative to the EU has been declining over the whole period from 148% in 2006 to 135% in 2013.

Sweden is performing above the average of the EU for most indicators especially for International scientific co-publications, R&D expenditures in the business sector, Public-private scientific co-publications and PCT patent applications in societal challenges. Relative weaknesses are in Sales share of new innovations and Knowledge-intensive services exports.

High growth in Sweden is observed for Community trademarks and non-EU doctorate students. Strong declines in growth are observed for Venture capital investments and Sales share of new innovations.

The Netherlands

The Netherlands is an Innovation follower. Performance has been improving steadily up until 2011 and then increased strongly in 2012 (among others due to a much high share of product and/or process innovators) and declined in 2013 (among others due to reduced license and patent revenues from abroad). The performance relative to the EU has been more volatile, reaching a peak of 118% in 2012 before falling to 114% in 2013.

The Netherlands are performing above the EU average for most indicators, most notably for International scientific co-publications, Public-private scientific co-publications and most cited scientific publications. Relative weaknesses are in Knowledge-intensive services exports and in the Sales share of new innovations.

High growth is observed for non-R&D innovation expenditures, Community trademarks, International scientific co-publications and new doctorate graduates. Strong declines in growth are observed for License and patent revenues from abroad and Knowledge-intensive services exports.

Finland

Finland is an Innovation leader and innovation performance has been increasing until 2011 and remained stable in 2012 and 2013. The performance relative to the EU has been declining from its peak of 131% in 2008 to 123% in 2013.

Finland is performing above the average of the EU for most indicators. Relative strengths are in International scientific co-publications, R&D expenditures in the business sector, New doctorate graduates and License and patent revenues from abroad. Relative weaknesses are in non-EU doctorate students and Knowledge- intensive services exports.

High growth is observed for Community trademarks and Non-EU doctorate students. Notable declines in growth are observed for new doctorate graduates and Non-R&D innovation expenditures.

Denmark

Denmark is an Innovation leader. Innovation performance declined significantly in 2008 (in particular due to lower shares of product and/or process innovators, marketing and/ or organizational innovators, innovative SMEs collaborating with others and sales due to new innovative products) but has been increasing since then. The performance drop in 2008 and a slower rate of improvement as that of the EU caused a decline in the performance lead to the EU from 40% above average in 2008 to 32% in 2013.

Relative strengths compared to the EU average are in International scientific co-publications, Public-private scientific co-publications, Community designs and R&D expenditures in the business sector. Denmark performs below the EU average for non-EU doctorate graduates, Youth with secondary level education, non- R&D innovation expenditures and for the Contribution of Medium and High Tech exports to the trade balance.

High growth is observed for new doctorate graduates and International scientific co-publications. Growth has declined most notably for SME´s

with Marketing and/ or Organizational innovations and for Innovative SME´s collaborating with others.

Germany

Germany is an Innovation leader. Innovation performance has been increasing over the 2006 - 2013 period with only a temporary decline in 2011. The performance relative to the EU has declined from being 33% above average in 2008 and 2009 to 28 % in 2013.

Germany is performing well above the EU average, especially for International scientific co-publications, new doctorate graduates, non-R&D innovation expenditures and Community designs. Relative weaknesses are in Non-EU doctorates students, Venture capital investments and License and patent revenues from abroad.

Strong increases in growth are observed in Innovative SMEs collaborating with others and Community trademarks. Most notable growth declines are observed in non-R&D innovation expenditures, Venture capital investments and Sales share of new innovations.

France

France is an Innovation follower. Innovation performance has been increasing strongly until 2010 after which growth started to slow down until its performance level declined in 2013 (in particular due to a smaller share of fast-growing firms in innovative sectors). The performance level relative to the EU reached a peak of 107% in 2011 but has dropped to just 103% in 2013.

France is performing for most indicators around the EU average. Relative strengths are in International scientific co-publications, non-EU doctorate students and Population with tertiary education. Relative weaknesses are in non-R&D innovation expenditures, Community trademarks and in Knowledge-intensive service exports.

France has experienced growth for most indicators, particularly in Community trademarks, International scientific co-publications and new doctorate graduates. The largest growth decline is observed for non-R&D innovation expenditures.

Spain

Spain is a Moderate innovator. Innovation performance has improved between 2006 and 2013. However, the country's performance gap to the EU has increased. In 2008 the relative performance level was 77% whereas in 2013 it has decreased to 75%.

Spain is performing for most indicators below the average of the EU. Relative weaknesses are in License and patent revenues from abroad and Knowledge-intensive services exports. Relative strengths are in International scientific co-publications, Sales share of new innovations and Community trademarks.

High growth in Spain is observed for International scientific co-publications, Sales share of new innovations and PCT patent application in societal challenges. The largest growth decline is observed for Venture capital investment. Other notable declines are in SMEs innovating in-house and in Community designs.

Portugal

Portugal is a Moderate innovator. Innovation performance has been increasing until 2010 after which it has remained relatively steady. Portugal managed to improve its performance relative to the EU from 64% in 2006 to 79% in 2010 before falling to 74% in 2013.

Portugal performs below the EU average for most indicators, most notably for License and patent revenues from abroad, PCT patent applications and PCT patent applications from societal challenges. Relative strengths are in International scientific co-publications, SMEs with Product and/or Process innovations and SMEs with Marketing and/or Organizational innovations.

Most indicators are growing positively in Portugal, in particular Community designs, R&D expenditures in the business sector and International scientific co- publications. Large declines in growth are observed in non-R&D innovation expenditures, new doctorate graduates and Venture capital investments.

Italy

Italy is a Moderate innovator. Its innovation performance has been increasing steadily until 2012 and experienced a small decline in 2013. Italy has been increasing its innovation performance relative to the EU which reached 80% in 2013.

Italy performs below the average of the EU for most indicators. Relative weaknesses are in Non-EU doctorate students and Innovative SME´s collaborating with others. Relative strengths are in International scientific co-publications and Community designs.

Italy has experienced growth for most indicators. High growth is observed for non-EU doctorate students, License and patent revenues from abroad, International scientific co-publications and community trademarks. Growth declines are observed in Venture capital investments, non-R&D innovation expenditures, Community designs and Employment in knowledge - intensive activities.

4 .5 Concluding comments

Based on the Cultural dimensions of Hofstede, House, Schwartz and Boisot we could distinguish four groups of countries with different innovative capacities. The cultural characteristics which have a profound impact on the expected ranking are the Hofstede scores on: Power distance, Individualism versus Collectivism, Masculinity versus Feminity and Uncertainty avoidance. Of the GLOBE cultural dimensions Future orientation, Human orientation and Performance orientation are important. Of the Schwartz dimensions Openness to change, Self-transcendence, Mastery, Intellectual autonomy and Egalitarism play an important role. The scores on these cultural dimensions lead the ranking as given in Table 2

Table 2 ▪ Ranking of countries on innovative capacities based on cultural characteristics.

INNOVATION LEADERS	Sweden Finland Denmark The Netherlands UK
INNOVATION FOLLOWERS	Germany
MODERATE INNOVATORS	France
LOW INNOVATIVE COUNTRIES	Spain Italy Portugal

Based on the Global Innovation Index and the European Innovation Scoreboard which actually measures the innovative performance of countries the grouping can be made (declining actual ranking) as given in Table 3.

Table 3 ▪ Ranking of countries on innovative strength based on Global Innovation Index and European scoreboard.

	GLOBAL INNOVATION INDEX	**EUROPEAN INNOVATION SCOREBOARD**
INNOVATION LEADERS	UK Sweden The Netherlands Finland	Sweden Denmark Germany Finland
INNOVATION FOLLOWERS	Denmark Germany	The Netherlands UK France
MODERATE INNOVATORS	France Spain Portugal Italy	Italy Spain Portugal

1. The national culture of several countries was categorized with use of the cultural dimensions of Hofstede, House, Schwartz and Boisot. Countries were ranked by their innovative performance with use of their scores on the Global Innovation Index and on the European Innovation Scoreboard. Based on this literature review one can conclude that there is a positive relation between several cultural characteristics of countries and its innovative strength.
2. The Nordic countries (Sweden, Finland), the Netherlands and the UK came out as the leading innovators in Europe following the Global Innovation index. In the ranking of the European Innovation Scoreboard the Netherlands and the UK score a little bit lower. This outcome is in line with the cultural characteristics of these countries. Germany has been put in the category of innovation followers from a cultural perspective. The high uncertanty avoidance is due to this somewhat lower classification. However as already adressed high uncertainty avoidance could have a negative influence on the initiation of innovation but a positive impact on the succesful implementation of innovation. It is for this reason that it scores higher on the European Innovation Scoreboard.
3. France ranks average both from a cultural and from the actually realized innovative performance perspective.
4. The South European countries don't possess the ideal cultural characterisctics to be very innovative and indeed show a lower measured performance of innovation, and so compensity policy should be developed.

Further research was necessary to assess which cultural characteristics have the strongest correlation with the innovative strength of nations. In chapter 5 Cultural values and leadership styles as determinants of the innovative strengths of nations part 2, the hypotheses as formulated in in 5.1 have been examined by quantitative research.


5

A comparative study of cultural values and leadership styles as determinants of the innovative strengths of nations.

A comparative study of cultural values and leadership styles as determinants of the innovative strengths of nations.

Part 1: Culture and leadership theories. [7]

Part 2: Quantitative research and analyses. [8]

Summary part 1 and 2

Part 1. deals with the correlations of the cultural values and leadership styles on innovative strength based on the theories of Hofstede. Schwartz and Cameron & Quinn. These have also been described in 4. The impact of cross-cultural competence on the innovative strength of nations. A comprehensive review of the theories of Hofstede, Schwartz, the Globe, Boisot and Cameron and Quinn.

This leads to the hypothesis on cultural values: there is a positive correlation between the Hofstede dimensions Low Power Distance, High Individualism and Low Uncertainty Avoidance and innovative strength. The same for the Schwartz values Achievement, Self-Direction, Benevolence, Openness to change, Self-enhancement, Self-transcendence and Intellectual Autonomy.

With regard to leadership styles the hypothesis is that there is a positive correlation between the leadership styles Visionary, Inspirational, Participative, Empowerment, Mentor and coach, Stimulator, Entrepreneurial, Creative, Ambitious, Innovative, Developing alliances, Willingness to take risks, Ability to anticipate change and Tough and demanding and innovative strength.

In Part 2 these hypotheses have been examined by a quantitative research.

The organizational cultures and the leadership styles are strongly correlated. We may conclude that the organizational culture has a profound impact on innovative strength of organizations.

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[7]Moonen, P.J.J.(2019). European Journal of Cross Cultural Management, Vol. 5, No. 1, pp. 13-41

[8]Moonen, P.J.J.(2019). European Journal of Cross Cultural Management, accepted for publication. DOI: 10.1504/EJCCM.2018.10016033

By critically evaluating the qualitative cultural frameworks of well-known scholars and relating these to quantitative statistical data about the correlation between the cultural values and Management styles and innovative strength parts 1 and 2 combine the strength of both qualitative and quantitative methodologies.

A comparative study of cultural values and leadership styles as determinants of the innovative strengths of nations.

Part 2: Quantitative research and analyses.

The purpose is to establish the impact of cultural values and leadership style on the innovative strength of nations in Europe in order to formulate practical advice for public institutions and corporate investors.

On the base of the results and conclusions from a quantitative web survey research possible relations between cultural values, leadership style characteristics and the innovative strength have been examined. The survey was aimed at citizens from EC countries, the US, Japan, Brazil, Russia, India, and China who represent a key role at the national or regional government, at the private sector enterprise, at universities and higher education institutes who are knowledgeable on Science, Technology and Innovation (STI) policies and policy making. The target also included BSc and MSc students which follow study programs linked with intercultural management, strategic marketing and innovation. SPSS 23.0 statistical software was used to carry out empirical analyses.

Based on the results of this research we may conclude that there is a correlation between several cultural characteristics and leadership style characteristics of countries in question and their innovative strength. The results of this paper point out the importance of cultural values and leadership style for innovation.

This research has assessed the relation between national cultural values and leadership styles on the innovative strength of nations. In total 683 respondents answered the research questions, 5 cases with many “I don’t know” answers were removed from the data. In total 623 respondents (the residents of 10 countries with the highest responds) have been selected for further analyses.

The results of this study provide us with the insight that the innovative strength of a nation or organization can be altered by changing (parts of) its culture and management style. A practical implication of this finding is that a government can for example increase its nation's innovative strength by encouraging cooperation between different institutions, by limiting rules and regulations which could cause barriers in the innovation process and by education in the appropriate leadership styles which enhance the innovation process.

A social implication of the findings of this study is the knowledge that to alter the innovative strength of a nation, a government needs to pursue a pro-active policy of transforming national culture and leadership style through the educational system. Such an effort to influence the national culture addresses interesting issues regarding the concept of social engineering.

5.1 Hypotheses

The theories of Hofstede, Schwartz and Cameron & Quinn, which I had presented above, lead to the following general hypothesis concerning the influence of national culture on the innovative behavior of researchers and entrepreneurs, politicians and businessmen:

There is a correlation between the cultural characteristics of nations and the innovative strength of their countries.

Hofstede's contribution to the awareness of this correlation, or general hypothesis broken down to the sub-hypotheses, which could be operationalized and tested:

H1a. There is a strong negative correlation between power distance and innovation initiation. Reducing the power distance by institutional and managerial measures increases innovation.

H1b. High power distance in society could be an incentive to start new venture for people with entrepreneurial inspirations, if they compete for power positions to exploit them.

H1c. There is a positive correlation between individualism and innovative strength.

H1d. There is both a positive correlation and a negative between masculinity and innovative strength. It is positive if implementing innovation involves accelerated economic advantages. It is negative if creativity and the initiation of innovation are concerned.

H1e. There is a negative correlation between uncertainty avoidance and innovation initiation. The reverse is true for the implementation phase of innovations.

H1f. Monumentalism correlates negatively with innovative strength.

Schwartz's contribution to the awareness of this correlation, or general hypothesis broken down to sub-hypotheses according to Schwartz's cultural values

The sub-hypotheses about the correlation between a national culture's position with respect to the three values: Power, Achievement and Stimulation do not require separate hypotheses, since they are correspond to Hofstede's dimensions, for instance power distance and a high score on masculinity, and had already been formulated above. We already concluded that there is a strong negative correlation between power distance and innovation initiation and so operationalizing it with Hofstedian dimension covers also the operationalization of this Schwartzian value. The same holds true for the Schwartzian value Tradition. It is related to Hofstede's uncertainty avoidance, power distance and collectivism of which we already concluded that these cultural values have a strong negative correlation with innovation initiation. Schwartzian value of Conformity is also related to Hofstede's value uncertainty avoidance and to some degree with power distance. Both have a strong negative correlation with innovation initiation. Finally, the Schwartzian value Security is also related with Hofstede's uncertainty avoidance and thus negatively correlates with innovation initiation (the reverse is true for the implementation phase of innovations).

S1a. The value Achievement: The urge and ambition to achieve and to be successful, as well as setting goals positively correlates positively with innovation initiation and innovative strength.

S1b. The value Self-Direction: independence of thought and decision, a drive to exploration and creativity, ability to choose one's own goals outside of the control of others, correlates positively with innovation initiation and innovative strength.

S1c. Universalism has a positive effect on innovative strength particularly in finding sustainable solutions in socially relevant domains (e.g. food, energy).

S1d. There is positive correlation between the value Openness to change and innovative strength.

S1e. There is a negative correlation between the value Conservation and innovative strength.

S1f. The value Self-Transcendence has a positive correlation with innovative strength.

S1g. There is a negative correlation between the value Harmony and innovative strength, the reverse is true for Mastery.

S1h. The value Intellectual Autonomy has a positive correlation with innovative strength, the reverse is true for Traditionalism.

S1i. There is a negative correlation between the value Hierarchy and innovative strength, the reverse is true for Egalitarianism.

The contribution of other authors, primarily Cameron & Quinn, to the operationalization of a general hypothesis about the correlation between cultural determinants and the innovative strength

CQB1a.There is a positive correlation between the leadership styles Visionary, Inspirational, Participative, Empowerment, Mentor and coach, Stimulator, Entrepreneurial, Creative, Ambitious, Innovative, Developing alliances, Willingness to take risks, Ability to anticipate change and Tough and demanding, Aggressively competing and customer focus and innovative strength. Mentioned leadership styles can be found in an Adhocracy and Market culture of Cameron & Quinn and in the Market and Clan culture of Boisot.

CQB1b.There is a negative correlation between the leadership styles Autocratic, Bureaucratic, Controller, and Telling and innovative strength. These leadership styles are common in the Hierarchy and Clan culture of Cameron & Quinn and in the Bureaucracy and Fief culture of Boisot.

Generally speaking, in formulating sub-hypotheses I had assumed that there is a positive relation between several cultural characteristics of countries and their innovative strength. Hence, the results underline the importance of cultural values for innovation. The results also support the findings of several previous studies (Lee & Peterson, 2000; Shane, 1993; Williams and McGuire, 2010; Hofstede et al., 2010; Trompenaars and Hamden-Turner, 2004, Baum et al, 1993, Djankov et al, 2003, Simon et al, 2009, Schwartz, 2004 and other scholars). An implication of these results is that the innovative strength of a nation or organization can be altered by changing (parts of) its culture: i.e. "the way things are done". If the innovative strength increases when the cultural characteristic 'power distance' is lower this implies that for an organization to be more innovative, hierarchical barriers and autocratic leadership styles that increase the power distance, need to be altered. Anticipating the discussion of research results, we can hope that to encourage innovation a government can, for example, slowly alter (a part of) its culture by changing the educational system and making the power distance between teachers and students smaller; by encouraging cooperation between different institutions, by limiting rules and regulations which could cause barriers in the innovation process, to actively support start-ups etc.

The research which I report in this chapter was necessary to assess which cultural characteristics have the strongest correlation with the innovative strength of nations. The sub-hypotheses listed above have been examined by this quantitative research.

5.2 Research design

5.2.1 Sample and data collection

The data collection was carried out using a large on-line questionnaire. In total 104 questions were answered. The questionnaire was divided in two themes: (1) leadership style characteristics, (2) dimensions of national culture. The leadership style characteristics as described by Hersey and Blanchard (1969), Cameron and Quinn (2006), Cameron et al. (2006), Reddin (1967), and the Jagdeep and Chhokar (2007) have been evaluated. For dimensions of national culture the cultural values as described by Hofstede et al. (2001), Hofstede et al. (2010), Sagiv and Schwartz (2007) and Schwartz (1999, 2004) have been applied.

The survey was targeted at citizens from EC countries, the US, Japan, Brazil, Russia, India, and China who occupy responsible positions at the national or regional government, in the private sector enterprises, but also at universities and higher education institutes (I have targeted those who are experts on Science, Technology and Innovation – STI – policies) and therefore influence policy making. The target population of respondents also included BSc and MSc students who follow study programs linked to intercultural management, strategic marketing and innovation. SPSS 23.0 statistical software was uses to carry out empirical analyses.

The questionnaire was distributed and filled forms collected between January 2015 and May 2016.

In total 683 respondents answered the research questions. 5 cases with many "I don't know" answers were removed from the data. The responses of residents of 10 countries with the highest response rate N=623, have been selected for further analyses (see Appendix 8 for the position on the global Innovation index (2015) of the 10 countries with the highest response rate).

5.2.2 Independent and dependent variables

Independent variables

Cultural characteristics per country

- Hofstede et al. (2010): the seven dimensions
- Jagdeep and Chhokar (2007) : the nine dimensions (partly overlapping the Hofstede dimensions)
- Schwartz (1999 and 2004) : the ten dimensions
- Sagiv and Schwartz (2007): The three bi-polar dimensions

Leadership styles per country

- Chhokar (2007): the eight leadership styles
- Cameron and Quinn (2006): the eight leadership styles
- House et al. (2004): the eight leadership styles
- Reddin (1967): the four leadership styles
- Hersey and Blanchard (1969): the four situational leadership styles

Dependent variables

Global innovation index 2015 as published by INSEAD. Dutta S. (2015)

- Ranking on the global innovation index of the researched countries as published by INSEAD
- This Global Innovation Index is composed of seven key indicators: Institutions, Human capital and research, Infrastructure, Market sophistication, Business Sophistication, Knowledge and Technology out puts and Creative outputs
- Ranking on the Creative outputs index
- Ranking on the Knowledge and Technology outputs index

Checking predictions and hypotheses based on national culture characteristics as determinants of competitive strength of nations I have chosen the position of a country on Global Innovation Index as an objective dependent variable. The reason for this choice is that The Global Innovation index is very precisely calculated on basis of 27 indicators covering 7 dimensions of innovation. The first 5 relating to innovation inputs and the last 2 relating to the outputs and effects of innovation. The position and ranking of a country on the Global Innovation index reflects its innovative strength.

Analyses

SPSS 23.0 statistical software was used to carry out empirical analyses.

5.3 Key findings

First the correlations between cultural values are discussed, next the correlations between cultural values and leadership styles are addressed. The correlations between cultural values and leadership styles and the global innovation indexes are assessed.

The most important part of my research was to establish factor analyses of both cultural values and leadership styles. The purpose was to bring the large number of variables back to four principle components / factors for both cultural values and leadership styles. Regression analyses has been

executed to examine the correlation of these factors with innovative strength, knowledge and technology outputs and creative outputs: What predictable value have these factors on innovation.

(For descriptive statistics, N means and standard deviation of cultural values and leadership styles, see appendix 9).

5.3.1 Correlations between cultural values

The following significant correlations (> 0,2) at the 0.01 level were found

Table 1 ▪ Correlations between cultural values

CULTURAL DIMENSION	CULTURAL DIMENSION	CORRELATION COEFFICIENT
Large Power Distance	High Masculinity	0.419
	Short term orientation	0.301
	Restraint	0,257
	Monumentalism	0.322
	Self enhancement	0.306
	Embeddedness, traditionalism and conservation	0.363
	Hierarchy	0.443
	High uncertainty avoidance	0.286
Low Power Distance	Low uncertainty avoidance	0.225
	High Femininity	0.247
	Indulgence	0.221
	Self-transcendence	0.226
	Openness to change	0.242
	Egalitarianism	0.241
	Intellectual Autonomy	0.255

Individualism	High Masculinity	0,207
Collectivism	Embeddedness, traditionalism and conservation	0.318
	Hierarchy	0.254
	Short term orientation	0.300
	Monumentalism	0.234
High femininity	Low Power Distance	0.247
	Low uncertainty avoidance	0.240
	Self-transcendence	0.302
	Openness to change	0.285
	Harmony	0.297
Low uncertainty avoidance	Openness to change	0.314
	Mastery	0.213

Large Power distance correlates with rather conservative values (Short term orientation, High uncertainty avoidance, Restraint, Monumentalism, Embeddedness, Traditionalism and Conservation, Hierarchy), the same for collectivism. Low power distance correlates much more with rather modern values (High Femininity, Indulgence, Self-transcendence, Openness to change, Egalitarianism, Intellectual Autonomy), the same for high femininity and low uncertainty avoidance. A high score on Individuality correlates with Masculinity.

5.3.2 Correlations between cultural values and leadership styles

Significant correlations (>0,2) at the 0.01 level

Table 2 ▪ Correlations between cultural values and leadership styles

CULTURAL DIMENSION	LEADERSHIP STYLE	CORRELATION COEFFICIENT
Large Power Distance	Autocratic	0,340
	Bureaucratic	0,213
	Controller	0,306
	Competitive winning spirit	0,284
	Tough and demanding	0,283
	Focus on profitability	0,284
	Telling	0,315
Low Power Distance	Team integrator	0,297
	Empowering and motivating others	0,234
	Joint decision making	0,276
	Delegating	0,241
	Style awareness	0,201
	Style flexibility	0,234
Individualism	-	
Collectivism	-	
High Masculinity	Charismatic	0,216
	Performance oriented	0,218
	Autocratic	0,281
	Ambitious	0,270
	Controller	0,292
	Competitive winning spirit	0,397
	Goal oriented	0,275
	Tough and demanding	0,374
	Focus on profitability	0,338
	Telling	0,294

High femininity	-	
High Uncertainty avoidance	Autocratic	0,204
	Controller	0,226
	Telling	0,247
Low uncertainty avoidance	Empowering	0,201
	Willingness to take risk	0,209
	Style awareness	0,227
	Situational sensitivity	0,220
	Style flexibility	0,265
	The ability to anticipate change	0,207
Long term orientation	Situational sensitivity	0,225
	Style flexibility	0,231
Short term orientation	Autocratic	0,222
	Competitive winning spirit	0,218
	Telling	0,280
Indulgence	Inspirational	0,247
	Stimulator	0,236
	Creative	0,208
	Coordinator	0,225
	Delegating	0,209
	Willingness to take risk	0,216
	Situational sensitivity	0,233
	Style flexibility	0,213
	Ability to anticipate change	0,213
Restraint	Bureaucratic	0,201
	Controller	0,232
	Tough and demanding	0,212
	Focus on profitability	0,208
	Telling	0,239

Monumentalism	Charismatic	0,217
	Autocratic	0,260
	Controller	0,216
	Competitive winning spirit	0,245
	Goal oriented	0,163
	Tough and demanding	0,270
	Telling	0,300
	Developing alliances	0,200
Self-effacement	Inspirational	0,227
	Team integrator	0,235
	Participative	0,202
	Empowerment and motivating others	0,337
	Mentor and coach	0,290
	Stimulator	0,258
	Creative	0,254
	Innovative	0,305
	Coordinator	0,202
	Joint decision making	0,258
	Delegating	0,231
	Situational sensitivity	0,261
	Style flexibility	0,270
	Ability to anticipate change	0,264
	Willingness to take risk	0,260
	Style awareness	0,296

Self-enhancement	Performance oriented	0,278
	Autocratic	0,249
	Ambitious	0,397
	Controller	0,268
	Competitive winning spirit	0,390
	Goal oriented	0,339
	Tough and demanding	0,302
	Focus on profitability	0,335
Conservation / Traditionalism / Embeddedness	Autocratic	0,253
	Bureaucratic	0,250
	Controller	0,223
	Competitive winning spirit	0,224
	Tough and demanding	0,237
	Focus on profitability	0,253
	Telling	0,301
Self-transcendence / Harmony	Inspirational	0,205
	Team integrator	0,207
	Empowering and motivating others	0,203
	Mentor and coach	0,228
	Stimulator	0,244
	Creative	0,231
	Joint decision making	0,218
	Selling	0,219
	Style awareness	0,205
	The ability to anticipate change	0,212

Mastery	Visionary	0,247
	Performance oriented	0,267
	Entrepreneurial	0,221
	Ambitious	0,389
	Innovative	0,264
	Ability to anticipate change	0,253
	Coordinator	0,244
	Competitive winning spirit	0,306
	Goal oriented	0,318
	Tough and demanding	0,200
	Focus on profitability	0,271
	Willingness to take risk	0,225
	Style awareness	0,281
	Situational sensitivity	0,245
	Style flexibility	0,216
Egalitarianism	Visionary	0,205
	Team integrator	0,223
	Participative	0,208
	Empowering and motivating others	0,249
	Mentor and coach	0,240
	Stimulator	0,230
	Creative	0,213
	Innovative	0,273
	Coordinator	0,207
	Goal oriented	0,245
	Joint decision making	0,269
	Selling	0,222
	Style awareness	0,213
	Style flexibility	0,234
	The ability to anticipate change	0,276

Hierarchy	Charismatic	0,260
	Performance oriented	0,225
	Autocratic	0,312
	Ambitious	0,203
	Bureaucratic	0,270
	Controller	0,291
	Competitive winning spirit	0,283
	Tough and demanding	0,302
	Focus on profitability	0,209
	Telling	0,275
Intellectual autonomy	Visionary	0,209
	Inspirational	0,256
	Team integrator	0,219
	Empowering and supporting others	0,318
	Mentor and coach	0,236
	Stimulator	0,296
	Creative	0,252
	Innovative	0,276
	Goal oriented	0,242
	Joint decision making	0,250
	Selling	0,252
	Delegating	0,251
	Willingness to take risk	0,229
	Style awareness	0,291
	Situational sensitivity	0,249
	Style flexibility	0,284
	The ability to anticipate change	0,310

Comments.

The leadership styles, which are usually described as Autocratic, Ambitious, Bureaucratic, Controlling, Competitive, Tough, Demanding and Telling correlate with the cultural dimensions Large Power Distance, Collectivism, Masculinity, High Uncertainty Avoidance, Short Term Orientation, Restraint, Self-enhancement, Monumentalism, Conservation, Traditionalism, Embeddedness and Hierarchy.

The leadership styles, which are usually described as Empowering, Stimulating, Delegating, Willing to take risk, Style awareness, Situational sensitivity, Style flexibility, the Ability to anticipate change, Participative, Coordinating - correlate with the cultural dimensions Low Power Distance, Low Uncertainty Avoidance, Long term orientation, Indulgence, Self-effacement, Self-transcendence/ Harmony, Egalitarianism and Intellectual Autonomy.

The leadership styles, which are usually described as Empowerment and motivating others, Mentor and coach, Stimulator, Creative, Innovative, Joint decision making, Situational sensitivity, Style flexibility, Style awareness, Ability to anticipate change and Willingness to take risk - correlate with the cultural dimensions Self-effacement, Self- transcendence/Harmony, Egalitarianism and Intellectual autonomy.

5.3.3 Correlations between cultural values and the global innovation indexes

Correlations at the 0.01 level

Table 3 ▪ Correlations between cultural values and the global innovation indexes.

CULTURAL VALUE	CREATIVE OUTPUTS	KNOWLEDGE	INNOVATION INDEX
Large Power Distance	-0,271	-0,210	-0,298
Small Power distance	0,144	0,136	0,182
Individualism	-	-	-

Collectivism	-,0174	-	-0,200
Masculinity	-0,179	-	-0,174
Feminity	0,158	0,189	0,147
High Uncertainty avoidance	-0,162	-0,140	-0,180
Low Uncertainty avoidance	-	-	-
Indulgence	-	-	-
Restraint	-	-	-
Monumentalism	-0,235	-0,187	-0,222
Self-effacement	0,278	0,200	0,281
Long term orientation	-	-	-
Short term orientation	-0,273	-0,196	-0,286
Openness to change	0,319	0,287	0,313
Self–enhancement	0,189	-	0,181
Conservation / Traditionalism / Embeddedness	-0,292	-0,206	-0,295
Hierarchy	-0,358	-0,208	-0,342
Self-transcendence / Harmony	-	-	-
Egalitarianism	0,176	0,154	0,204
Intellectual Autonomy	0,165	0,169	0,189
Creative outputs index	1,000	0,730	0,909
Knowledge index	0,730	1,000	0,769

Comments.

The cultural dimensions Large Power Distance, Short term orientation, Conservation, Traditionalism, Embeddedness and Hierarchy correspond negatively with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser account this is true for the cultural dimensions Collectivism, Masculinity, High Uncertainty Avoidance and Monumentalism. These findings of my research confirm my hypotheses (e.g. H1a., H1d., H1e., H1f., S1e., S1h., S1i).

The cultural dimensions Self-effacement and Openness to change correspond positively with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser extent this is true for the cultural dimensions Small Power Distance, Femininity, Self-enhancement, Egalitarianism and Intellectual Autonomy. These findings also confirm the general hypothesis and in particular the sub-hypotheses (e.g. H1a, S1b., S1d., S1h.).

5.3.4 Correlations between leadership styles and the global innovation indexes

Correlations at the 0.01 level

Table 4 ▪ Correlations between leadership styles and the global innovation indexes

LEADERSHIP STYLE	CREATIVE OUTPUTS	KNOWLEDGE	INNOVATION INDEX
Charismatic	-	-	-
Visionary	-	-	-
Inspirational	-	-	-
Performance oriented	-	-	-
Team integrator	-	0,166	-
Participative	-	-	-
Autocratic	-0,301	-0,269	-0,326

Empowering	-	0,137	0,149
Mentor and coach	-	-	-
Stimulator	-	0,142	-
Entrepreneurial	-	-	-
Creative	-	-	-
Ambitious	-	-	-
Innovative	-	-	0,164
Bureaucratic	-0,180	-0,163	-0,188
Controller	-	-	-
Coordinator	-	-	-
Competitive winning spirit	-0,231	-0,143	-0,198
Tough and demanding	-0,291	-0,289	-0,301
Focus on profitability	-	-	-
Joint decision making	0,173	0,179	0,187
Selling	-	-	-
Telling	-0,232	-0,157	-0,255
Delegating	-	-	-
Developing alliances	-	-	-
Willingness to take risks	-	-	-
Style awareness	-	-	-
Situational sensitivity	-	-	-
Style flexibility	-	-	-
The ability to anticipate change	0,109	0,130	0,134
Knowledge index	0,730	1,000	0,769
Creative index	1,000	0,730	0,909

Comments

The leadership styles Autocratic, Tough and Demanding, and Telling have a negative correlation with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser account this is true for the leadership styles Bureaucratic and Competitive. These findings do confirm the hypothesis (e.g. CQB2).

The leadership styles Empowering an Motivating others, Joint Decision Making and The Ability to Anticipate Change have a weak but positive correlation with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. This finding is also in line with our hypothesis (e.g. CQB1). However the results of my research don't show a correlation of the leadership styles mentioned below (namely Visionary, Inspirational, Participative, Mentor and coach, Entrepreneurial, Creative, Ambitious. Innovative, Developing alliances and Willingness to take risks) with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index (so part of the hypothesis CQB1 is not confirmed here).

5.3.5 Factor analyses

Factor analyses of my research findings about the influence of cultural values and leadership styles upon a generalized innovativeness have been completed. The purpose was to bring the large number of variables back to four principle components - thus reducing the number of indicators of both cultural values and leadership styles. Doing so we reduce the data set to a more manageable size while retaining as much of the original information as possible. Factor analyses attempts to achieve parsimony by explaining the maximum amount of common variance in a correlation matrix using the smallest number of explanatory constructs. In factor analyses these constructs represent clusters variables that correlate highly with each other.

For this principal component analyses have preceded selection. Later the factors have been named. The hypothesis is that combined components within the factors show a more clear correlation with Innovative strength as they represent unknown underlying basic and principal value orientations.

Regression analyses has been executed to examine the correlation of these factors with innovative strength, knowledge and technology outputs and creative outputs: what interested me most was how predictable can be the influence of these values represented by factors constructed in this way, on innovation.

PRINCIPLE COMPONENT ANALYSES ON THE SURVEY ITEMS	CULTURAL VALUES	LEADERSHIP STYLE
Predictors used in regression	4 factor model	4 factor model
Dependent variables in the regression	-	-
Innovation Index	Regression	Regression
Knowledge and Technology Outputs	Regression	Regression
Creative Outputs	Regression	Regression

Factor analyses of Cultural Values

Selection method: Principle Component Analyses

Table 5 ▪ Factor analyses of Cultural Values

Let us begin with the list of cultural values which show a significant high positive correlation (>0,3) at a p level <0,01 in relation to one of the four component factors

FACTOR 1 TRADITIONALISM / CONSERVATISM	CORRELATION AT A P LEVEL < 0,01
Large power distance	0,457
Highly collectivist	0,433
High Uncertainty avoidance	0,384
Highly masculine	0,517
Ambition, Success, choosing own goals and daring	0,596
Achievement, power and ambition are important	0,585
High constraint	0,451
High Monumentalism	0,533
Security, social order, obedience and tradition	0,566
Respecting hierarchy, authority and being humble	0,626
Short term orientation	0,455
Caring about welfare of all people, unity with nature and peace	0,400
FACTOR 2 OPENESS TO CHANGE / INTELLECTUAL AUTONOMY / OPEN MINDED	**CORRELATION AT A P LEVEL < 0,01**
Small power distance	0,538
Low Uncertainty Avoidance	0,337
Highly feminine	0,373
Humility and flexibility	0,591

Openness to change	0,643
Caring about welfare of all people, unity with nature and peace	0,467
Social justice, equality, freedom, responsibility and honesty	0,599
Intellectual autonomy meaning independence of thought and decision	0,574
Indulgence	0,424
FACTOR 3 WELLNESS / COOPERATIVE UNDER ANY CONDITION	**CORRELATION AT A P LEVEL < 0,01**
Highly feminine	0,525
Highly collective	0,434
Respecting hierarchy, authority	0,334
Achievement, power and ambition are important	0,565
Ambition, success, choosing own goals and daring	0,480
Highly masculine	0,318
FACTOR 4 FREE COMMUNITY / EASY GOING	**CORRELATION AT A P LEVEL < 0,01**
Highly collectivist	0,305
Low Uncertainty Avoidance	0,398
Long term orientation	0,503
Indulgence	0,529
Social justice, equality, freedom, responsibility and honesty	-0,418
Caring about welfare of all people, unity with nature and peace	-0,416
Constraint	-0,326
Security, social order, obedience and tradition	-0,267

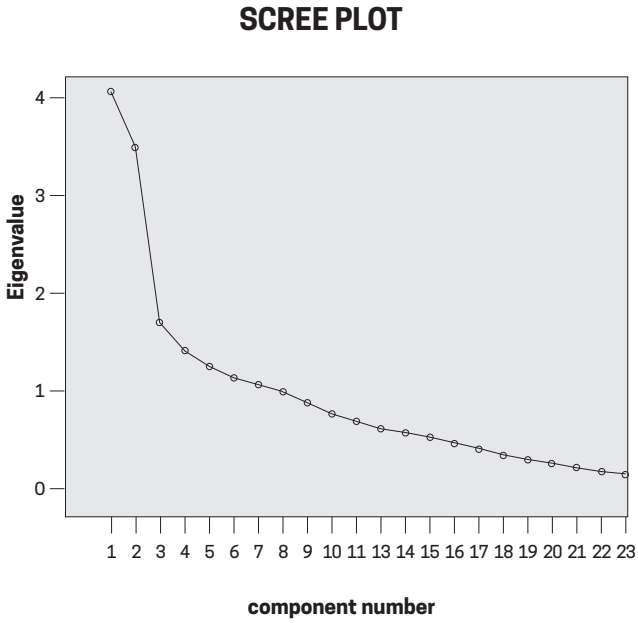

TABLE 6 ▪ Total Variance of Cultural values explained

Total Variance of Cultural values Explained

CULTURAL FACTOR	INITIAL EIGENVALUES		
	TOTAL	% OF VARIANCE	CUMULATIVE %
1	3,841	16,702	16,702
2	3,415	14,848	31,550
3	1,665	7,239	38,789
4	1,365	5,934	44,723

CULTURAL FACTOR	EXTRACTION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULATIVE %
1	3,841	16,702	16,702
2	3,415	14,848	31,550
3	1,665	7,239	38,789
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CULTURAL FACTOR	EXTRACTION SUMS OF SQUARED LOADINGS		
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1	3,841	16,702	16,702
2	3,415	14,848	31,550
3	1,665	7,239	38,789
4	1,365	5,934	44,723

Extraction Method: Spearman Principal Component Analysis

Factor 1 to 4 explain 44,7% of all variance of cultural value variables we had encountered in our research. I have therefore limited the number of factors to 4. The factors 5 to 31 represent too low % of variance of cultural values and have thus been left out of further analysis.

Review of the cultural factors, which emerged as relevant and significant in determining cultural influences upon innovativeness.

Factor 1 Traditionalism / conservatism

This factor corresponds strongly with the Schwartz values Tradition, Security and Conformity. Power distance and Uncertainty avoidance is both high. Security, social order, obedience and tradition and respecting hierarchy and authority are important.

Factor 2 Openness to change / Intellectual autonomy / Open minded

This factor corresponds strongly to such Schwartz determinant cultural factors as Openness to Change, Self- direction, Stimulation and Hedonism. Independence of thought and decision, creativity and exploration are important values for respondents, in whose answers this factor had been identified.

Factor 3 Wellness / Cooperative under any condition

What this factor covers is a fundamental belief that Conformity is an important value. The same goes for Security. The awareness of being a part of a collective and sense of belonging and the harmony within society are vital to respondents, whose answers allow us to identify this factor. In a sense, the presence of this factor also corresponds to the Schwartzian value of conservatism. Achievement, power and ambition are not decisive, they tend to be less important. People don't demonstrate ambition. Personal success, choosing one's own goals and risk-taking are not among the important values. People tend to accept their role in society and try to act accordingly.

Factor 4 Free community / Easy going

Among respondents, whose choices demonstrate the presence of this factor, Indulgence is an important value. People feel free to express their feelings and to indulge others and themselves. They not seem to ascribe a very important role to a feeling of responsibility for society as a whole, which may be harmed by their indulgent and self-indulgent attitudes. In fact these respondents, who allowed us to identify the fourth factor tends to make an impression of being fairly anarchistic.

Factor analyses from the point of view of their influence on Leadership Styles

Among respondents, whose choices demonstrate the presence of this factor, Indulgence is an important value. People feel free to express their feelings and to indulge others and themselves. They not seem to ascribe a very important role to a feeling of responsibility for society as a whole, which may be harmed by their indulgent and self-indulgent attitudes. In fact these respondents, who

allowed us to identify the fourth factor tends to make an impression of being fairly anarchistic.

Factor analyses from the point of view of their influence on Leadership Styles

Selection method: Principle Component Analyses

Here is the list of leadership styles which show a high significant positive correlation (>0,3) at a p level < 0,01 level in relation to one of the four component factors

Table 7 ▪ Factor analyses on Leadership Styles

FACTOR 1 THE STIMULATING INSPIRING EMPOWERING INNOVATIVE PERFORMER	CORRELATION AT A P LEVEL < 0,01
Stimulator	0,672
Empowering and motivating others	0,641
The Ability to anticipate Change	0,609
Innovative	0,660
Mentor and coach	0,640
Goal oriented	0,599
Situational sensitivity	0,590
Coordinator	0,552
Style flexibility	0,597
Style Awareness	0,567
Creative	0,571
Participative	0,534
Visionary	0,554
Team integrator	0,590

Joint decision making	0,511
Selling	0,509
Willingness to take risks	0,528
Entrepreneurial	0,543
Performance oriented	0,478
Inspirational	0,494
Ambitious	0,495
Developing alliances	0,471
Focus on profitability	0,322
Competitive winning spirit	0,354
Charismatic	0,379
Delegating	0,405
FACTOR 2 THE TOUGH, AUTOCRATIC AND COMPETING CONTROLLER / THE DICTATOR TYPE	**CORRELATION AT A P LEVEL < 0,01**
Goal oriented	0,315
Performance oriented	0,284
Ambitious	0,332
Tough and demanding	0,670
Controller	0,656
Telling	0,642
Autocratic	0,560
Bureaucratic	0,498
Competitive winning spirit	0,526
Focus on profitability	0,582

FACTOR 3 THE FLEXIBLE BUT NON-INSPIRATIONAL NETWORKER / THE ADAPTER	CORRELATION AT A P LEVEL < 0,01
Situational flexibility	0,415
Style flexibility	0,340
Developing alliances	0,358
Joint decision making	0,258
Delegating	0,387
Inspirational	-0,481
Visionary	-0,374
Charismatic	-0,289
FACTOR 4 THE BUREAUCRATIC AND RISK AVOIDING COORDINATOR	**CORRELATION AT A P LEVEL < 0,01**
Bureaucratic	0,491
Coordinator	0,410
Controller	0,322
Participating	0,338
Willingness to take risk	-0,428
Competitive winning spirit	-0,316
The ability to anticipate change	-0,216

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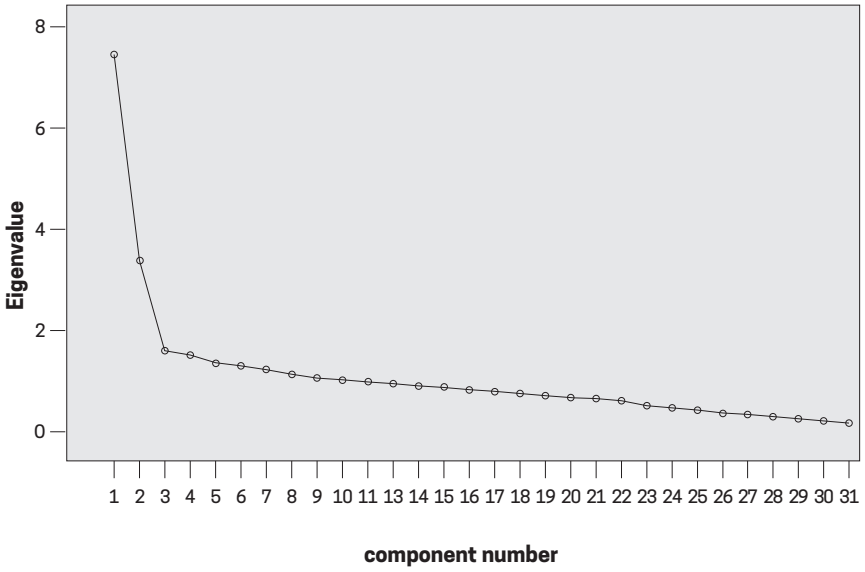


TABLE 8 ▪ Total Variance of Leadership styles explained

CULTURAL FACTOR	INITIAL EIGENVALUES		
	TOTAL	% OF VARIANCE	CUMULATIVE %
1	7,668	24,736	24,736
2	3,325	10,727	35,462
3	1,591	5,132	40,595
4	1,454	4,692	45,286

CULTURAL FACTOR	EXTRACTION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULATIVE %
1	7,668	24,736	24,736
2	3,325	10,727	35,462
3	1,591	5,132	40,595
4	1,454	4,692	45,286
CULTURAL FACTOR	EXTRACTION SUMS OF SQUARED LOADINGS		
	TOTAL	% OF VARIANCE	CUMULATIVE %
1	4,610	14,871	14,871
2	4,142	13,362	28,232
3	3,408	10,992	39,225
4	1,879	6,061	45,286

Extraction Method: Spearman Principal Component Analysis.

As I have already mentioned above, factors 1 to 4 explain 45,3% of all variance of leadership style variables. Therefore I have limited the number of factors to 4. Out of those 4, the strongest factors with regard to leadership style are factor 1 and 2.

Comments on factor explanation of the influence of cultural values through the identification of four main types of the leadership styles.

Leadership plays an important role in both business organizations and public institutions, both of which influence the general innovative strength of a given national or organizational community. After having identified and analyzed the four factors linked to the cultural values influencing innovative behavior, we have identified and analyzed the four leadership types, whose influence upon innovative strength of organizations and nations can be explained by differentiating between four basic types of leadership.

Factor 1. The stimulating inspiring empowering innovative performer

The presence of this factor in responses indicates a preference for the following leadership style: “stimulating, inspiring, empowering, innovative performer”

This leadership style is common in the adhocracy culture. Leaders are also expected to be visionary, innovative, entrepreneurial and risk oriented (Cameron & Quinn, 2006)

Following Cameron & Quinn:

Value Drivers: Innovative outputs, change, and agility

Theory of Effectiveness: Innovativeness, vision, and new resources are effective

Management Theory: Surprise and delight, creating new standards, anticipating needs, continuous improvement, finding creative solutions

Factor 2. The tough, autocratic and competing controller / The dictator type

This leadership style can be found in the market culture. Leaders in this culture are expected to be hard driving, tough, and demanding competitors (Cameron & Quinn, 2006).

Following Cameron & Quinn:

Value Drivers: Market share, goal achievement, profitability

Theory of Effectiveness: Aggressively competing and customer focus are effective

Quality Improvement Strategy: Measuring client preferences, improving productivity, creating external partnerships, improving competitiveness, getting customers and suppliers to participate.

Factor 3. The flexible but non-inspirational networker / The adapter

This leadership style doesn’t fit in the leadership styles of Cameron & Quinn. Leaders adapt to the situation and have a flexible leadership style. They value networking, joint decision making and delegate a lot.

They are rather of a melancholic type. They are not visionary, not inspiring and not charismatic.

This leader has an inclination for cooperation however he doesn't set own goals. Instead they follow their respective leaders. This leadership style has an inclination for lower hierarchy position.

It is a synthesis of the submissive type 2 and de cooperative type 4 as described by Nechansky (2017).

Factor 4. The bureaucratic and risk avoiding coordinator

This leadership style could be present in the hierarchy culture. The hierarchy culture is a formalized and structured bureaucracy. It is focused at stability and control. This culture values tight coordination, continues monitoring, efficiency, reliability, predictability, and standardization.

The employees throughout the multiple hierarchical levels have almost no discretion. (Cameron & Quinn, 2006).

Following Cameron & Quinn:

Value Drivers: Efficiency, timeliness, consistency, and uniformity

Theory of Effectiveness: Control and efficiency with capable processes are effective

Quality Improvement Strategy: Error detection, measurement, process control, systematic problem solving, quality tools

5.3.6 Correlation of cultural factors and Leadership style factors

Table 9 ▪ Correlation of cultural factors and Leadership style factors

		REGR FACTOR 1 LEADERSHIP (THE STIMULATING EMPOWERING INNOVATIVE CREATIVE LEADER).	REGR FACTOR 2 LEADERSHIP (THE TOUGH AND AUTOCRATIC COMPETING CONTROLLER / THE DICTATOR)	REGR FACTOR 3 LEADERSHIP (THE NON-INSPIRATIONAL NETWORKER / THE ADAPTER)	REGR FACTOR 4 LEADERSHIP (THE BUREAUCRATIC AND RISK AVOIDING COORDINATOR)
REGR FACTOR SCORE 1 CULTURAL VALUES (TRADITIONALISM / CONSERVATISM)	Pearson Correlation	,052	,027	,352**	,179**
	Sig. (2-tailed)	,193	,499	,000	,000
	N	623	623	623	623
REGR FACTOR SCORE 2 CULTURAL VALUES (OPENNESS TO CHANGE / INTELLECTUAL AUTONOMY / OPEN MINDED)	Pearson Correlation	,292**	,351**	-,175**	,129**
	Sig. (2-tailed)	,000	,000	,000	,001
	N	623	623	623	623
REGR FACTOR SCORE 3 CULTURAL VALUES (WELLNESS / COOPERATIVE UNDER ANY CONDITION)	Pearson Correlation	,175**	,092*	,453**	-,027
	Sig. (2-tailed)	,000	,022	,000	,502
	N	623	623	623	623
REGR FACTOR SCORE 4 CULTURAL VALUES (FREE COMMUNITY / EASY GOING)	Pearson Correlation	,159**	,281**	,035	-,043
	Sig. (2-tailed)	,000	,000	,387	,280
	N	623	623	623	623

Correlation is significant at the 0.01 level (2-tailed).**

Correlation is significant at the 0.05 level (2-tailed).*

Cultural values Factor 1 (Traditionalism /conservatism) correlates strongly with Leadership style 3 (the non- inspirational networker / The adapter) and Leadership style 4 (The bureaucratic and risk avoiding coordinator). It is based on stability and an internal orientation.

Cultural values Factor 2 (Openness to change / Intellectual autonomy / Open minded) correlates strongly with Leadership style 1 (The stimulating empowering innovative creative leader) and Leadership style 2 (The tough and autocratic competing controller / The dictator). There is a negative correlation with the leadership style 3 (the flexible non-inspirational networker/ The adaptor).

Cultural factor 3 (Wellness / Cooperative under any condition) correlates strongly with leadership style 3 (the flexible non-inspirational networker / The adaptor) and leadership style 1 (The stimulating empowering innovative creative leader).

Cultural factor 4 (Free community / Easy going) positively correlates with leadership style 1 (The stimulating empowering innovative creative leader) and more strongly with leadership style 2 (The tough, autocratic and competing controller)

5.3.7 Regression Cultural values with Innovation Index

TABLE 10 ▪ Regression Cultural values with Innovation Index

COEFFICIENTS[A]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	59,650	,163		366,971	,000
	REGR Cultural value factor 1	-,795	,163	-,183	-4,889	,000
	REGR Cultural value factor 2	1,335	,163	,307	8,206	,000
	REGR Cultural value factor 3	-,350	,163	-,080	-2,149	,032
	REGR Cultural value factor 4	-,075	,163	-,017	-,464	,643

[a] Dependent Variable: Wat is the score on the innovation index 2015?

Factor 1 Cultural values (Traditionalism / Conservation) has a significant strong negative correlation with innovative strength.

Factor 2 Cultural values (Openness to change / Intellectual autonomy / Open minded) has a significant strong positive correlation with innovative strength.

Factor 3 cultural values (Wellness / Cooperative under any condition) has a significant negative correlation with innovative strength.

Factor 4 Cultural values (Free community / Easy going) does not show a correlation with innovative strength.

5.3.8 Regression Cultural values with Knowledge and Technology outputs

TABLE 11 ▪ Regression Cultural values with Knowledge and Technology outputs

COEFFICIENTS[A]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	53,905	,198		272,816	,000
	REGR Cultural value factor 1	-,466	,198	-,090	-2,358	,019
	REGR Cultural value factor 2	1,484	,198	,288	7,502	,000
	REGR Cultural value factor 3	-,091	,198	-,018	-,462	,644
	REGR Cultural value factor 4	-,050	,198	-,010	-,255	,799

[a] Dependent Variable: Wat is the score of K&T outputs on the innovation index 2015?

Factor 1 cultural values (Traditionalism / Conservation) has a significant negative correlation with K&T outputs.

Factor 2 cultural values (Openness to change / Intellectual autonomy / Open minded) has a significant strong positive correlation with K&T Outputs.

Factor 3 (Wellness / Cooperative under any condition) and 4 (Free community / Easy going) do not show a correlation with K&T outputs.

5.3.9 Regression Cultural values with Creative outputs

Table 12 ▪ Regression Cultural values with Creative outputs

COEFFICIENTS[a]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	58,750	,251		234,486	,000
	REGR Cultural value factor 1	-1,445	,251	-,217	-5,761	,000
	REGR Cultural value factor 2	1,755	,251	,263	6,997	,000
	REGR Cultural value factor 3	-,628	,251	-,094	-2,504	,013
	REGR Cultural value factor 4	,030	,251	,005	,120	,905

[a] Dependent Variable: Wat is the score of Creative outputs on the innovation index 2015?

Factor 1 Cultural values (Traditionalism /Conservation) has a significant negative correlation with Creative outputs.

Factor 2 Cultural values (Openness to change / Intellectual autonomy / Open minded) has a significant strong positive correlation with Creative outputs.

Factor 3 Cultural values (Wellness / Cooperative under any condition) has a significant negative correlation with Creative outputs.

Factor 4 Cultural values (4 (Free community / Easy going) does not show a significant correlation.

5.3.10 Regression Leadership styles with Innovation Index

TABLE 13 ▪ Regression Leadership styles with Innovation Index

COEFFICIENTS[A]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	59,650	,168		355,013	,000
	REGR Leadership style factor 1	,531	,170	,121	3,129	,0002
	REGR Leadership style factor 2	,520	,170	,118	3,060	,002
	REGR Leadership style factor 3	-,939	,170	-,214	-5,533	,000
	REGR Leadership style factor 4	-,123	,170	-,028	-,725	,469

[a] Dependent Variable: Wat is the score on the innovation index 2015?

Factor 1 Leadership style (The stimulating empowering innovative creative leader) has a significant positive correlation with the Innovation index, the same for Factor 2 Leadership style (The tough, autocratic and competing controller).

Factor 3 Leadership style (The flexible but non-inspirational networker / The adaptor) has a significant negative correlation with the Innovation index.

Factor 4 Leadership style (The bureaucratic and risk avoiding coordinator) does not show a significant correlation with the innovation index.

5.3.11 Regression Leadership styles with Knowledge and Technology outputs

Table 14 ▪ Regression Leadership styles with Knowledge and Technology outputs

COEFFICIENTS[A]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	53,905	,201		268,030	,000
	REGR Leadership style factor 1	,783	,203	,150	3,854	,000
	REGR Leadership style factor 2	,616	,203	,118	3,029	,003
	REGR Leadership style factor 3	-,751	,203	-,144	-3,697	,000
	REGR Leadership style factor 4	,179	,203	,034	,881	,378

[a] Dependent Variable: Wat is the score of K&T outputs on the innovation index 2015?

Factor 1 Leadership style (The stimulating empowering innovative creative leader) has a significant positive correlation with K&T outputs, the same for Factor 2 Leadership style (The tough, autocratic and competing controller).

Factor 3 Leadership style (The flexible but non-inspirational networker) has a significant negative correlation with K&T outputs.

Factor 4 Leadership style (The bureaucratic and risk avoiding coordinator) does not show a significant correlation with K&T outputs.

5.3.12 Regression Leadership styles with Creative Outputs

TABLE 15 ▪ Regression Leadership styles with Knowledge and Technology outputs

COEFFICIENTS[A]						
MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	STD. ERROR	BETA		
1	(Constant)	58,750	,257		228,240	,000
	REGR Leadership style factor 1	,690	,260	,103	2,653	,008
	REGR Leadership style factor 2	,773	,260	,115	2,973	,003
	REGR Leadership style factor 3	-1,506	,260	-,224	-5,788	,000
	REGR Leadership style factor 4	-,360	,260	-,053	-1,384	,167

[a] Dependent Variable: Wat is the score of Creative outputs on the innovation index 2015?

Factor 1 Leadership style (The stimulating empowering innovative creative leader) has a significant positive correlation with Creative outputs, the same for Factor 2 Leadership style (The tough, autocratic and competing controller).

Factor 3 Leadership style (The flexible but non-inspirational networker / The adaptor) has a significant negative correlation with Creative outputs.

Factor 4 Leadership style (The bureaucratic and risk avoiding coordinator) does not show a significant correlation with Creative outputs.

5.4 Conclusions

Do different cultural values correlate with each other? Is there a correlation between Cultural values and Leadership styles? Which cultural values and leadership styles correlate with Innovative strength, Knowledge and Technology Outputs and Creative Outputs (which allows us to conclude that they influence the competitive innovative strength of nations and organizations)? What Factors for both Cultural values and Leadership styles have a predictable correlation with Innovative strength, K&T outputs and Creative outputs? Are these correlations in line with our expectations and my hypotheses based on studies of Hofstede, Schwartz and Cameron & Quinn? Which of the hypotheses put forward in this thesis are confirmed and which are not?

1. **There is a correlation between cultural values, which makes them cluster around each other and increases probability that they will mutually reinforce one another.**

High scores of respondents on power distance dimension tend to correlate with rather conservative values, the same goes for high scores on the Hofstedian cultural dimension of collectivism. Low power distance correlates much more with rather modern values - and the same holds for high femininity and low uncertainty avoidance. A high score on Individuality usually correlates with high scores on Masculinity.

2. **There is a significant (strong) correlation between Cultural values and Leadership styles. They do cluster. Joint influence of socially shared cultural values and organizationally relevant leadership style are relevant and significant for innovative strength of organizations and nations.**

Cultural values Factor 1 (Traditionalism / Conservation) correlates strongly with Leadership style 3 (the non- inspirational networker / The adaptor) and Leadership style 4 (the risk avoiding bureaucratic coordinator).

Cultural values Factor 2 (Openness to change / Intellectual autonomy / Open minded) correlates strongly with Leadership style 1 (The stimulating empowering innovative creative leader) and Leadership style 2 (The tough and autocratic competing controller). There is a negative correlation with the leadership style 3 (the flexible non-inspirational networker / the adaptor).

Cultural factor 3 (Wellness / Cooperative under any condition) correlates strongly with leadership style 3 (the flexible non-inspirational networker/ The adaptor) and leadership style 1 (The stimulating empowering innovative creative leader).

Cultural factor 4 (Free community / Easy going) positively correlates with leadership style 1 (The stimulating empowering innovative creative leader) and more strongly with leadership style 2 (The tough, autocratic and competing controller).

3. **The correlation coefficients of the single cultural value variables of Hofstede and Schwartz and leadership styles of Cameron & Quinn with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index are low (nevertheless they are in many cases significant enough to warrant a closer inspection and future studies).**

The cultural dimensions Large Power Distance, Short term orientation, Conservation, Traditionalism, Embeddedness and Hierarchy correspond negatively with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser account this is true for the cultural dimensions Collectivism, Masculinity, High Uncertainty Avoidance and Monumentalism. This corresponds with the hypothesis as described before.

The cultural dimensions Self-effacement and Openness to change correspond positively with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser account this is true for the cultural dimensions Small Power Distance, Femininity, Self-enhancement, Egalitarianism and Intellectual Autonomy. Also this confirms the hypothesis.

The leadership styles Autocratic, Tough and Demanding, and Telling have a negative correlation with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. To a somewhat lesser account this is true for the leadership styles Bureaucratic, Competitive winning spirit. This confirms the hypothesis.

The leadership styles Empowering an Motivating others, Joint Decision Making and The Ability to Anticipate Change have a weak but positive correlation with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index. This is in line with the hypothesis. However the results don't show a

correlation of the leadership styles Visionary, Inspirational, Participative, Mentor and coach, Entrepreneurial, Creative, Ambitious. Innovative, Developing alliances and Willingness to take risks with the Creative Outputs, Knowledge and Technology Outputs and the Innovation index.

4. **The defined factors for Cultural values and Leadership style composed out of the single variables of cultural values and leadership style characteristics do show a significant high correlation with the Innovation Index, Knowledge and Technology Outputs and Creative outputs. This correlation is in line with literature of Hofstede, Schwartz and Cameron & Quinn and Hersey and Blanchard and the hypothesis put forward.**

The defined cultural value Openness to change / Intellectual autonomy / Open minded has a significant strong correlation with innovative strength, Knowledge & Technology Outputs and Creative Outputs.

The defined cultural value Conservation has a significant strong negative correlation with Innovative strength, Knowledge & Technology Outputs and Creative Outputs. This applies to a somewhat lower extent for the defined cultural value Wellness / Cooperative under any condition.

The defined Leadership style The stimulating empowering innovative creative leader has a significant positive correlation with Innovative strength, K& T outputs and Creative Outputs, the same for the Leadership style The tough, autocratic and competing controller. This is confirmed by research of Zhang and Barrol who found that empowering leadership had a strong influence on creativity via increasing intrinsic motivation. Here, empowering leadership includes leader behaviors such as emphasizing the significance and meaningfulness of the employee's job, providing more autonomy and encouraging employees to have self-efficacy. Scott and Bruce (1994) found that supervisors' high expectations for subordinates' innovativeness led to subordinates' higher innovative performance.

The Leadership style The flexible but non-inspirational networker/ The adaptor has a strong significant negative correlation with the Innovation index, K&T outputs and Creative outputs.

5.5 Discussion

The research presented above has allowed us to assess the relation between national cultural values and organizational leadership styles and their joint influence on the innovative strength of nations. In total 683 respondents answered the research questions, only 5 cases with many "I don't know" answers were removed from the data. In total 623 respondents (residents of 10 countries with the highest responds) have been selected for further analyses.

An important finding in this research is that there is a significant strong correlation between cultural values of a given national community and preferred organizational leadership styles. Cultural values and Leadership styles form a cluster and jointly correlate with Innovative strength, Knowledge and Technology Outputs and Creative Outputs. The most important finding is that the defined Factors for both Cultural values and Leadership style have a predictable strong correlation with Innovative strength, K&T outputs and Creative outputs. This correlation is in line with literature of Hofstede, Schwartz and Cameron & Quinn. Moreover, in the course of our research we could detect one cultural new factor (Free community / easy going) and one new leadership style factor (The flexible but non inspirational networker / The adapter) – which so far had not been described in literature of the subject.

Further quantitative research should follow with a higher number of respondents for the countries under research establishing a larger data base allowing us to draw conclusions about the factors for each and every country. Also countries with a lower rank on the innovative index should be included, not only because this might lead us towards detecting stronger correlations, but also because of the practical importance of increasing the rate of innovation.

The quantitative data are indicative for the Cultural value and Leadership style factors. Thanks to this quantitative research we know what the correlations are. Nevertheless, sophisticated qualitative research could help us detect underlying causes of the correlations between different cultural values. We have found out that they exist. But we do not know yet why. The same goes for leadership style characteristics and the correlations between cultural values and leadership styles.

A new conceptual model that integrates the different theories and observations with the outcomes of the studies described in this thesis would be desirable.

Beginning with the data and outcomes of this research, the theories developed by Hofstede, Schwartz and Cameron & Quinn and the more recently developed theories by Dauber et al (2012) and G. Fink and M. Yolles (2015, 2016), a configuration model of innovation management could be designed.


6

Conclusions and directions for future research

6.1 Cross-cultural competence and the innovative capacity of society

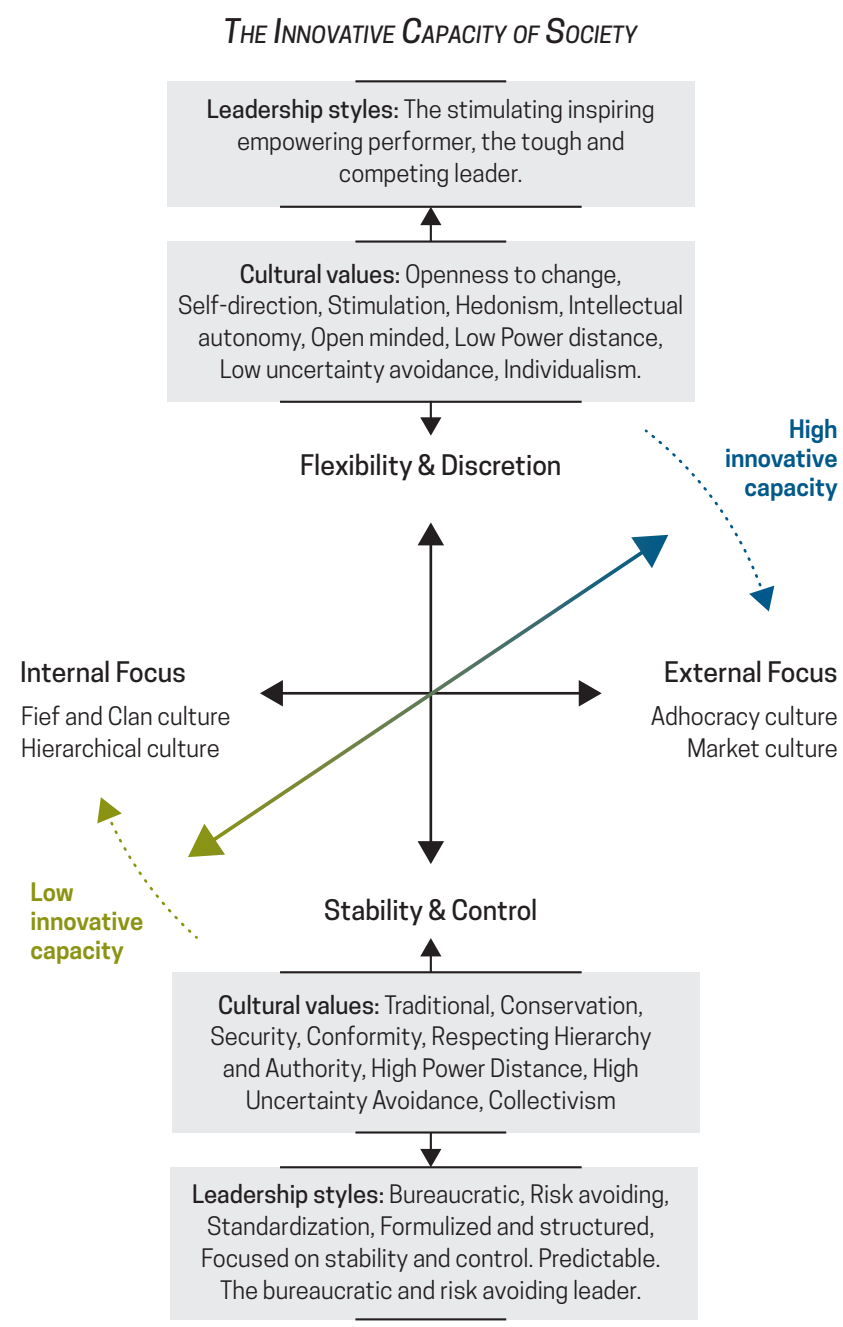
I have devoted attention to the development of a new conceptual model that integrates the different theories and observations with the outcomes of the studies described in this thesis.

The model "The innovative capacity of society" includes the external and internal focus of nations and its organizations. These are based on Cameron and Quinn (2006) and Boisot (2010). To the left in the graph, the organization is internally centered (what is important for us, and how do we want to work?), which leads to a fief and clan culture or a hierarchy culture. To the right, the organization is externally focused (what is valuable for the outside world, the clients, and the market?), which leads to an adhocracy or market culture based on an energetic and creative working environment.

As put forward in this thesis the external and internal focus is strongly related with cultural values of a society. An external focus is related with the cultural values Openness to change, Self-direction, Stimulation, Hedonism, Intellectual autonomy, Open minded, Low Power distance, Low Uncertainty avoidance and Individualism. An internal focus is related with the cultural values Traditionalism, Conservation, Security, Conformity, Respecting Hierarchy and Authority, High Uncertainty Avoidance and Collectivism.

The vertical axis describes the outcomes of the quantitative studies, as put forward in this thesis, on how cultural values impact leadership styles, with flexibility and discretion at the top and innovating, risk taking, tough and competing leaders as opposed to stability and control and bureaucratic, risk avoiding and formulized and structured leaders at the bottom.

Combined, a more externally focused society with leadership characterized by flexibility and discretion correlates with a high innovative capacity, as opposed to an internally focused society with leadership style characterized by stability and control that correlates with a low innovative capacity.



Conceptual model: The innovative capacity of society

6.2 Conclusions

Cultural evolution of knowledge production involves social articulation and transmission of knowledge. These are strongly related to culture and lead to more complex and institutional stratified structures and communicational patterns which have an influence on the sharing of information and knowledge, and which may lead to unpredictable emergent clusters and constellations of factors.

Typically cultures of most organizations and institutions, corporate, industrial, and national, mix different transactional forms so that the resultant institutional order must be described as a configuration that blends together markets, bureaucracies, clans and fiefs. What makes a culture distinctive is how it distributes transactions – and in order to trace these transactions we would have to operationalize the Information-Space, which had been outlined by Boisot but still waits for a broader implementation in research projects.

There is strong evidence that national culture has a profound influence on the position in the information space. National culture and beliefs influence socialization practices, legal frameworks and economic behavior patterns in ways that strongly skew the distribution of transactions in the information space. This distribution is critical for the innovative strength of nations.

An important finding in this research is that there is a significant strong correlation between cultural values and leadership styles. Some cultures lead to a leadership style which stimulates creativity and innovation. Specifically, supportive leadership, empowering leadership and transformational leadership may increase intrinsic task motivation to be creative and innovative. The same goes for tough and demanding leadership with a strong consumer focus and a continuous drive to improve competitiveness.

Cultural values and Leadership correlate with Innovative strength, Knowledge and Technology Outputs and Creative Outputs. The most important finding is that the defined Factors for both Cultural values and Leadership style have a significant predictable correlation with Innovative strength, K&T outputs and Creative outputs.

6.3 Directions for future research

An important contribution of cross-cultural research is to advance new constructs and perspectives for developing more precise and comprehensive theories because of the diversity in societal culture and institutional environment. Most theories and constructs have been developed in the West and do not contribute to theoretical innovation from a cultural perspective. A few studies have suggested that some Chinese indigenous concepts play a role in the innovation processes, including relational orientation (Lieung et al., 2014), Zhong yong (Yao et al., 2010), Guanxi (Huang et al., 2008) and Benevolent Leadership, Wang and Cheng (2010). These concepts are obviously new in the Western literature and research based on them may extend current theories on organizational creativity and innovation.

Cross-cultural research suggests that the conceptualization of creativity and innovation is subjected to cultural influence. The degree of novelty (radical

innovations) is emphasized in Individual cultures, whereas the dimension of usefulness is emphasized in Collectivist cultures. Services and products are popular not only because they are new; they must also be useful, and the emphases on the usefulness dimension should and could elevate the overall innovation of firms from collectivist cultures. An interesting direction of research is to examine how such cultural differences in the conceptualization of creativity shape the innovation process. An interesting question is whether the emphasis on usefulness prompts firms in collectivist cultures to focus more on incremental innovation and emphasis on novelty prompts firms in individualist cultures to focus more on radical innovation.

It is important to explore cultural differences in creativity and innovation processes for the development of general theories of creativity and innovation (De Dreu, 2010). Cultural differences may occur in the generation of creative ideas, in the section, editing and marketing of those ideas and in their acceptance and implementation. Prior cross-cultural research has focused on idea generation and future research needs to identify and account for cultural differences in other stages (Chiu and Kwan, 2010).

Cross-level relationships between individual creativity and team-, firm- and nation-level innovation should be explored. Identifying the particular management practices that are needed in order to encourage employees' commitment in different cultural contexts to being creative and innovative is important.

It is widely accepted that cultural diversity is beneficial to team creativity (Adler, 1986, Van Knippenberg et al., 2004). However the relationship between cultural diversity and team creativity is not as straightforward as previously assumed and that the negative interpersonal dynamics triggered by cultural diversity and may hinder team creativity. This is an important area of research because culturally diverse teams are commonplace and frequently adopted for innovation purposes as globalization is a key feature of contemporary business. We need to know when cultural diversity is beneficial to team creativity and the processes involved.

A more recent area of research is concerned with how cultural diversity within individuals is related to creativity. The number of employees with multicultural experiences is rising because of globalization, and it is important to have

insight whether and how this international employee is able to contribute to innovation in their firms. Many interesting research questions can be raised, such probing the circumstances under which “bi-culturals” show higher creativity and personally can facilitate the innovation process due to intercultural skills and competences. Many studies in this filed are based on experiments with students, however the external validity of the results needs to be evaluated in real-live contexts.

Appendices

Appendix 1: Consequences of high uncertainty avoidance.

In the research of Hofstede it appeared that there is a difference in higher avoidance societies compared to low uncertainty avoidance societies in relation to the consumption of food and beverages. Uncertainty avoiding cultures used mineral water rather than tap water, even when the water was of good quality. They ate more fresh fruits and used more pure sugar. Uncertainty accepting cultures valued the convenience over purity, thus consumed more ready-made products, such as ice cream, frozen foods, confectionary and savory snacks. Customers in higher uncertainty avoidance cultures tended to be hesitant towards new products and information.

The US researcher Scott Shane found that across thirty-three countries the number of new trademarks granted to nationals was negatively related with uncertainty-avoidance (Shane, 1992). He concluded that uncertainty-avoiding cultures were slower in innovating. Shane and colleagues also surveyed employees of four multinational companies in thirty countries about their role in innovation processes. In stronger uncertainty-avoidance countries, employees more often felt constrained by existing rules and regulations (Djankov et al, 2003). The IBM surveys of Hofstede had found that a preference for larger over smaller companies to work for was positively correlated with masculinity and uncertainty-avoidance. In organizational literature large companies are often supposed to be less innovative than small ones, unless they reward entrepreneurs who dare to break rules. This term is a pun on the word entrepreneur, the independent self-starters who, according to the Austrian-American economist Joseph Schumpeter (1883-1950), are the main source of innovation in a society. His ideas played a role in a research project in which Hofstede and Dutch colleagues (Hofstede, 2001) studied the economic and cultural factors affecting levels of self-employment in twenty-one industrialized countries. Comparing self-employment levels with the countries uncertainty-avoidance scores produced a surprise. While one would expect that in strong uncertainty cultures fewer people would risk self-employment, the opposite turned out to be the case: self-employment rates were consistently positively correlated with high uncertainty-avoidance. Further research revealed that, in particular, one aspect associated with strong

uncertainty-avoidance accounted for the correlation: low subjective well-being in society. Self-employment was therefore more often chosen by countries in which people were dissatisfied with their lives, versus countries with a higher tolerance for the unknown. (Wildeman et al, 2001)

If Schumpeter was correct in stating that entrepreneurs innovate more than non-entrepreneurs, one could expect more, not less, innovation in high uncertainty-avoidance countries. Innovation however has more than one face. It may be true that weak uncertainty-avoidance cultures are better at basic innovations, but they seem to be at a disadvantage in developing these innovations in new products and services. Implementation of new processes demands a considerable science of detail and punctuality. The latter are more likely to be found in strong uncertainty-avoidance countries. Great Britain has produced more Nobel Prize winners than Japan, but Japan has put more new products on the word market, the same counts for Germany. Based on this we may conclude that a low uncertainty-avoidance leads to more basic scientific initiation of innovations, but that isn't a guarantee for implementing these innovations successfully in the market.

Uncertainty avoidance explains whether tense and vague situations are tolerated or avoided and to what extent. This dimension is related to the acceptance of strenuous and uncomfortable situations and regarded by Hofstede as "what is different, is dangerous". In societies with low uncertainty avoidance, organizational rules can be violated for pragmatic reasons, conflicts are considered as a natural part of life, and ambiguous situations are regarded as natural and interesting. In the case of strong uncertainty avoidance, the opposite tends to prevail. In working relations rules play an important role and are carefully followed. On the one hand, as innovations are associated with some kind of change and uncertainty, cultures with strong uncertainty avoidance are more resistant to innovations (Shane, 1993, Waarts and van Everdingen, 2005), and thus, less motivated to think creatively. To avoid uncertainty, these cultures adopt rules to minimize ambiguity. Rules and reliance on them, in turn, constrain the opportunities to develop new solutions. Uncertainty-averse attitudes also mean that there is less incentive to come out with a novel idea, which will be possibly rejected. On the other hand, it can

also be supposed that in cultures with stronger uncertainty avoidance, there is a stronger tendency to protect intellectual property with patenting. However, creating and patenting innovations are sequential phenomena: if there are no innovations there is nothing to patent as well.

Appendix 2: Cultural values and their impact on innovative strength, a tentative assessment.

Table A1 ▪ Cultural values and their impact on innovative strength, a tentative assessment.

Hofstede

CULTURAL VALUE	IMPACT ON INNOVATIVE STRENGTH	COMMENT
Power distance (PDI)	--	Very negative Power distance had a negative effect on economic creativity in a country.
Individualism versus collectivism (IDV)	+	Positive but if extreme negative due to a lack of cooperation
Masculinity – Feminity (MAS)	-/+	Negative for the initiation of innovation. Positive for the implementation of innovation. Standing out is an important drive to excel. However is striving for consensus, humanization of work by contact and cooperation, and the role of intuition not equally important?
Uncertainty avoidance (UAI)	-/+	Negative for initiating innovation, positive for implementing innovation
Long-term versus short-term orientation (LTO)	+	Positive due to an ability to adapt traditions to changed conditions, a strong propensity to save and invest, thriftiness, and perseverance in achieving results.
Indulgence versus Restraint (IVR)	+	Positive (freedom to express) There is a positive relationship between indulgence and national wealth.
Monumentalism vs. Self-effacement	-	Negative Proud and unwillingness to change are obstacles to innovation.

The Globe

CULTURAL VALUE	IMPACT ON INNOVATIVE STRENGTH	COMMENT
Uncertainty avoidance	--	Very negative. The Globe's power distance correlated more strongly with Hofstede's uncertainty index.
Power Distance	-	Negative The Globe's power distance correlated more strongly with Hofstede's uncertainty index.
Institutional Collectivism	-	Negative Globe's Institutional collectivism is exclusively related with Hofstede's Uncertainty avoidance index
In-Group Collectivism	+/-	Positive but if extreme negative In-Group Collectivism "as is " is very much related with Hofstede's Individualism versus collectivism (IDV) it is also the strongest correlated Globe's dimension for Hofstede's PDI
Future Orientation	+	Positive It doesn't correlate with either Hofstede's measures of LTO but did with a combination of low Uncertainty avoidance and low Power distance.
Human Orientation	+	Positive (motivation)
Assertiveness	+/-	Positive (assertive), Negative (aggressive) There is a significant correlation between this Globe dimension and Hofstede's dimension Masculinity versus femininity (MAS).
Performance orientation	++	Very positive Performance orientation "as is" correlates negatively with Hofstede's dimension Uncertainty Avoidance
Gender egalitarianism	+	Positive Gender equality has a lot to do with women's educational level, which strongly relates to national wealth and therefor indirectly to individualism. This Globe's dimension is not correlating with Hofstede's dimension Masculinity versus femininity

Schwartz

CULTURAL VALUE	IMPACT ON INNOVATIVE STRENGTH	COMMENT
Openness to change	++	Very positive
Self-enhancement	+/-	Positive (achievements), Negative (power)
Self-transcendence	+	Positive
Conservation	--	Very negative
Mastery	++	Very positive
Intellectual Autonomy	++	Very positive
Egalitarism	+	positive

++ very positive, + positive, +/- average positive, - negative, -- very negative

Appendix 3. Organizational Culture Assessment Instrument (OCAI), the Competing Value Framework (CVF) and Leadership style.

The Organizational Culture Assessment Instrument (OCAI) developed by Cameron and Quinn is a method to assess organizational culture.

Substantial research was involved in developing the OCAI. Professors Cameron and Quinn developed the model of the Competing Values Framework which consists of four Competing Values that correspond with four types of organizational culture.

Every organization has its own combination of these four types of organizational cultures.

This mix is found by the completion of a short survey. This assessment is a valid approach to looking at organizational culture and the wish for change.

OCAI questionnaire

The test taker must split 100 points over a total of four descriptions that matches the four culture types, according to the present organization. This method determines the blend of the four culture types that dominate the current organizational or team culture.

By answering the questionnaire a second time, this time dividing 100 points according to what the respondent would like to see in the organization, the preferred organizational culture and the desire for change can be calculated.

Test takers assess six key characteristics of their corporate culture:

- dominant characteristics
- organizational leadership
- management of employees
- organization glue
- strategic emphases
- criteria of success

By averaging all individual OCAI scores, a combined organization profile can be made. In smaller teams, it's also possible to use all the distinct individual profiles and talk about them.

A culture profile illustrates the following:

1. The dominant culture
2. The strength of the dominant culture (the amount of points given)
3. Discrepancy between present and preferred culture
4. The congruency of the six features. Cultural incongruence frequently leads to a desire to change, because different values and goals can take a lot of time and debate
5. Evaluation of the culture profile with the average for the sector
6. Comparison with average tendencies; in what phase of development is the organization?

The outcome

From Quinn and Cameron's extensive study, it was found that most organizations have developed a leading culture style. An organization rarely has only one culture type. Time and again, there is a mix of the four organizational cultures.

The Competing Values Framework states that the values and the corresponding organizational cultures compete with each other. Organizations can spend their money, attention, and time only once, so they tend to emphasize particular values.

Quinn and Cameron found that flexible organizations are the most successful, which sometimes leads to conflicting behavior. The "best" organizations can address the competition within this framework well and use all four value sets when needed.

A culture type performs best in the activities domain that aligns with that specific culture type. In the healthcare sector, for example, we find a lot of clan culture. This type genuinely fits in with the profession of looking after people. There is no final "best" organizational culture. Only in a particular circumstance will one class of culture serve better than another.

The Competing Values Framework

From a list of thirty-nine indicators of effectiveness for organizations, two vital dimensions were discovered by statistical analysis.

Cameron and Quinn made four quadrants corresponding with the four organizational cultures that differ deeply on these two dimensions:

- Internal focus and integration vs. External focus and differentiation
- Stability and control vs. Flexibility and discretion

The Four Culture Types and Leadership

The Clan Culture

This working environment is a sociable one. People have a lot in common, and it's like one big family. The executives are seen as mentors or maybe even as father figures. The organization is held together by commitment and tradition. There is great involvement. The organization emphasizes durable Human Resource development and connects fellow workers by morals. Success is identified within the framework of addressing the needs of the clients and caring for the people. The organization encourages teamwork, participation, and consensus.

Leader Type: facilitator, mentor, team builder

Value Drivers: Commitment, communication, development

Theory of Effectiveness: Human Resource development and involvement are effective

Quality Improvement Strategy: Empowerment, team building, employee participation, Human Resource development, open communication

The Adhocracy Culture

This is an energetic and creative working environment. Employees take risks. Leaders are innovators and risk takers. Experiments and innovation are the bonding materials within the organization. Prominence is emphasized. The long-term goal is to grow and create new resources. The availability of new products or services is seen as an achievement. The organization encourages individual ingenuity and freedom.

Leader Type: Innovator, entrepreneur, visionary

Value Drivers: Innovative outputs, change, agility

Theory of Effectiveness: Innovativeness, vision, and new resources are effective

Management Theory: Surprise and delight, creating new standards, anticipating needs, continuous improvement, finding creative solutions

The Market Culture

This is a results-based organization that highlights completing work and getting things done. People are competitive and concentrated on goals. Leaders are hard drivers, producers, and competitors at the same time. They are tough and have high expectations. The importance of winning keeps the organization together. Reputation and success are the most important. Long-term focus is on rival activities and reaching goals. Market penetration and stock are the definitions of success. Competitive prices and market leadership are key. The organizational style is based on competition.

Leader Type: Hard driver, rival, producer

Value Drivers: Market share, goal achievement, profitability

Theory of Effectiveness: Aggressively competing and customer focus are effective

Quality Improvement Strategy: Measuring client preferences, improving productivity, creating external partnerships, improving competitiveness, getting customers and suppliers to participate

The Hierarchy Culture

This is a formalized and structured work environment. Procedures decide what people do. Leaders are proud of their efficiency-based coordination. Keeping the organization functioning effortlessly is most crucial. Formal rules and policy keep the organization together. The lasting goals are stability and results, paired with the efficient and smooth execution of tasks. Trustful delivery, smooth planning, and low costs are the characterization of success. The personnel management has to guarantee work and values predictability.

Leader Type: Coordinator, monitor, organizer

Value Drivers: Efficiency, timeliness, consistency, and uniformity

Theory of Effectiveness: Control and efficiency with capable processes are effective

Quality Improvement Strategy: Error detection, measurement, process control, systematic problem solving, quality tools

Research shows that organizational culture is “the difference that makes the difference”—it is the reason why 70 percent of all mergers and reorganizations fail. The powerful cultural factor is really not as “undefined” as prejudice would have it. Culture is ordinarily experienced as obvious: people are not noticing. That’s why a description of it is not so straightforward while changing culture is even harder.

Appendix 4: The position on the Global Innovation index (2015) of 10 European countries.

TABLE A2 ▪ The position on the Global Innovation index (2015) of 10 European countries.

KEY INDICATOR	NETHERLANDS	SWEDEN	DENMARK	FINLAND	UK	GERMANY	FRANCE	ITALY	SPAIN	PORTUGAL
Global Innovation index Score 0-100	61,6	62,4	57,7	60,0	62,4	57,0	53,6	46,4	48,1	46,6
Global Innovation index Rank out of 143	4	3	10	6	2	12	21	31	27	30
Institutions	92 / 7*	90 / 9	943/ 4	96 /1	87 /14	83 /20	82 /21	74 / 38	75 / 35	81/ 25
Political environment	91**	92	91	99	78	85	78	65	68	79
Regulatory environment	97	93	98	97	95	82	87	81	77	77
Business environment	88	85	90	92	88	83	80	75	80	86
Human capital & research	52 / 17	62 / 4	63 / 3	65 / 1	58 / 7	57 / 10	56 / 12	41 / 33	46 / 27	48 /25
Education	58	58	63	64	56	54	55	52	55	57
Tertiary education	37	49	47	54	53	48	51	37	43	45

Research & development	60	77	78	77	63	68	61	36	40	41
Infrastructure	**61 / 13**	**63 / 7**	**56 / 21**	**59 /16**	**63 / 6**	**57 / 18**	**61 / 12**	**58 / 17**	**61 / 9**	**50 / 33**
ICT	89	76	74	77	89	73	88	71	78	63
General infrastructure	42	56	39	49	38	45	48	36	38	32
Ecological sustainability	50	57	55	50	62	52	47	66	67	56
Market sophistication	**62 / 17**	**64 / 14**	**68 / 7**	**61 / 19**	**74 / 3**	**59 / 22**	**59 / 25**	**54 / 39**	**65 / 10**	**55 / 34**
Credit	54	50	68	48	63	56	43	42	58	50
Investment	42	57	53	58	70	39	48	36	50	33
Trade & competition	89	85	85	78	90	80	86	83	85	83
Business sophistication	**55 / 10**	**57 / 7**	**50 / 17**	**59 / 4**	**54 / 13**	**49 / 20**	**49 / 19**	**41 / 39**	**38 / 47**	**35/ 65**
Knowledge workers	61	77	70	75	64	59	65	46	54	45

Innovation linkages	49	46	40	49	53	46	38	39	29	28
Knowledge absorption	56	49	39	55	44	42	45	38	32	32
Knowledge & technology outputs	**56 / 9**	**61 / 2**	**46 / 16**	**52 / 11**	**55 / 8**	**53 / 10**	**41 / 23**	**41/ 22**	**40 / 25**	**22 / 42**
Knowledge creation	55	71	45	58	59	65	34	33	31	22
Knowledge impact	48	48	46	44	59	47	44	54	52	47
Knowledge diffusion	65	63	47	54	48	49	45	37	37	30
Creative outputs	**62 / 4**	**55 / 11**	**53 / 13**	**52 / 15**	**61 / 5**	**53 / 14**	**51 / 19**	**38 / 47**	**42 / 31**	**46/ 25**
Creative intangibles	58	56	50	62	55	55	60	38	48	58
Creative goods and services	42	37	40	28	48	28	35	27	27	35
Online creativity	87	71	72	58	85	73	49	47	46	42

*Global innovation index score 0-100 / global innovation index rank

**Global innovation index score 0-100

Based on The Global Innovation Index. Dutta(2015)

Appendix 5: Country ranking of my country selection (patent applications to the EPO per million inhabitants 2010)

TABLE A3 ▪ Country ranking of my country selection (patent applications to the EPO per million inhabitants 2010)

COUNTRY	NUMBER OF PATENT APPLICATIONS 2010	PATENT APPLICATIONS PER MILLION INHABITANTS 2010	RANK
Sweden	2865	306.7	1
Germany	21724	265.6	2
Denmark	1338	241,7	3
Netherlands	3206	193.4	4
France	8741	135.1	5
UK	4745	76.5	6
Italy	4424	73.3	7
Spain	1454	31.6	8
Portugal	108	10.2	9

Patent applications of Finland not available

Based on Eurostat (2013)

Main statistical findings

From a low point of 51 375 EU-27 patent applications filed with the European Patent Office (EPO) in 2002, there was a steady increase during four years. Having peaked at 57 424 applications in 2006, the number of EU-27 patent applications to the EPO fell for four consecutive years, although latest estimates show that patent applications (54 415) in 2010 remained higher than at the start of the decade. During the period 2002 to 2006, the number of EU-27 patent applications to the EPO increased, on average, by 2.8 % per annum, while during the period 2006 to 2010 the reduction in the number of patents was, on average, 1.3 % per annum. Over the whole of the last decade (2000 to 2010), the number of EU-27 patent applications filed with the EPO increased by 2 704.

Among the EU Member States, Germany had by far the highest number of patent applications to the EPO, some 21 724 in 2010 (39.9 % of the EU-27 total). In relative terms, Sweden reported the highest number of patent applications per million inhabitants (306.7), followed by Germany (265.6), Denmark (241.7) and Finland (217.7). Between 2005 and 2010 the number of patent applications filed with the EPO fell in 12 of the EU Member States, the largest contractions being recorded in Germany, the United Kingdom, Italy and the Netherlands. The downturn in the number of patent applications in these countries more than outweighed the increases recorded in the remaining 17 Member States, where the highest absolute gains in numbers of applications were recorded in Sweden, France and Poland.

EU-27 high-technology patent applications to the EPO represented 23.7 % of all patent applications in 2001. Their relative importance declined after this, as did their absolute number – from 12 188 in 2001, there was a relatively steady reduction through to 2008 (despite growth in 2004). This was followed by a collapse in the number of high-technology applications in 2009, with the total falling to 4 765 (provisional data). This considerable and continued reduction in high-technology patent applications filed with the EPO may reflect the length of patent procedures.

A relatively small group of EU Member States had a far higher propensity to make high-technology patent applications to the EPO. The highest rates (per million inhabitants) were recorded in Sweden, Finland, Germany, the Netherlands, Belgium and France (all between 22.2 applications per million inhabitants and 17.7 applications per million inhabitants), while Denmark, and Austria were the only other EU Member States to record double-digit ratios.

Just under two fifths (39.3 %) of EU-27 patent applications to the EPO in 2009 were from single inventors, while the remainder were co-patents. By far the most common type of co-patent involved multiple inventors/applicants from a single country – in fact, such co-patents made up an overall majority (53.1 %) of all patent applications. Patent applications involving inventors from more than one country made up the remaining 7.6 % of patent applications to the EPO.

Citations are the references in search reports used to assess an invention's patentability; they document the state of the art at the time of the claimed invention. Citations in a patent application may be references to other patents or to other relevant reference material, such as scientific journals

Appendix 6: Expenditure and financing of research and development (Eurostat, 2013)

Among the EU Member States, only Finland (3.78 %), Sweden (3.37 %) and Denmark (3.09 %) exceeded the EU goal of devoting 3 % of GDP to R&D, also outperforming the United States. Another seven Member States, namely Germany (2.84 %), Austria (2.75 %), Slovenia (2.47 %), Estonia (2.38 %), France (2.25 %), the Netherlands and Belgium (both 2.04 %) were above the EU-27 average although below the target figure of 3 %.

Between 2005 and 2011, R&D expenditure in the EU-27 increased by an average of 3 % per year, reaching EUR 257 billion in 2011. Germany, France and the United Kingdom together accounted for more than half of all R&D expenditure in the EU-27.

The business enterprise sector (BES) was the largest of the four main institutional sectors of R&D performance in 2011, accounting for 62.3 % of EU-27 R&D expenditure. The higher education sector (HES) and government sector (GOV) followed with shares of 24.0 % and 12.7 % respectively.

In 2010, the government sector financed 34.6 % of total R&D expenditure in the EU-27, while business enterprise financed 53.9 %. The third important source of funds (almost 9 %) was the category of 'abroad'. More than 49 % of R&D expenditure in Cyprus, Poland, Romania and Slovakia was funded by the government sector. On the other hand, the business enterprise sector was heavily involved in financing R&D activities in R&D-intensive Member States such as Germany, Finland, Sweden and Denmark.

In many of the countries under review, the 'manufacturing' sector accounted for the greatest share of business enterprise R&D expenditure. This was notably the case in Germany, Slovenia, Finland and Sweden, where 75 % or more of R&D expenditure by the BES was devoted to manufacturing. However, eight other Member States (Bulgaria, Estonia, Ireland, Cyprus, Latvia, Lithuania, Portugal and the United Kingdom) saw more than half of their expenditure go on the services of the business economy.

The breakdown of business enterprise R&D expenditure (BERD) by size class reveals that enterprises with more than 250 employees generally invest the most in R&D. In Germany, Luxembourg, Finland and Sweden, such large

enterprises accounted for more than 80 % of BERD. On the other hand, in Bulgaria, Estonia, Spain, Cyprus, Latvia, Malta and Romania, large enterprises accounted for less than 50 % of BERD.

The R&D expenditure per inhabitant of the leading regions in three EU Member States was more than EUR 2 000, over four times higher than the EU-27 average (EUR 492). Hovedstaden recorded the highest regional R&D expenditure per inhabitant in Denmark (EUR 2 597), followed by Province Brabant Wallon in Belgium (EUR 2 454) and Stuttgart in Germany (EUR 2 134). Regions from six other EU countries and Norway completed the list of the top 30 regions with the highest R&D expenditure per inhabitant: Finland, Austria, France, the United Kingdom, Luxembourg and Sweden.

Appendix 7: The European Innovation Scoreboard (EIS) (Hollanders Hugo and Es-Sadki Nordine, 2014)

The EIS is a statistical instrument developed at the initiative of the European Commission in the framework of the Lisbon Strategy to provide a comparative assessment of innovation performance of the EU member States and the relative strengths and weaknesses of their research and innovation systems. It helps Member States assess areas in which they need to concentrate their efforts in order to boost their innovation performance.

The Innovation Union Scoreboard uses the most recent statistics from Eurostat and other internationally recognized sources such as the OECD and the United Nations as available at the time of analysis with the cut-off day by the end of November 2013. International sources have been used wherever possible in order to improve comparability between countries. The data relates to actual performance in 2009 (1 indicator), 2010 (9 indicators), 2011 (4 indicators) and 2012 (11 indicators),these are the most recent years for which data are available.

Data availability is good for 19 Member States with data being available for all 25 indicators. For 7 Member States (Croatia, Cyprus, Estonia, Latvia, Lithuania, Malta, Slovakia and the UK) data is missing for one indicator and for 1 Member State (Slovenia) data is missing for 2 indicators. For Venture capital investment data is available for 20 Member States.

The Innovation Union Scoreboard 2014, the 13th edition since the introduction of the European Innovation Scoreboard in 2001, follows the methodology of previous editions. Innovation performance is measured using a composite indicator – the Summary Innovation Index – which summarizes the performance of a range of different indicators. The Innovation Union Scoreboard distinguishes between three main types of indicators: Enablers, Firm activities and Outputs and 8 innovation dimensions, capturing in total 25 indicators.

Enablers

The Enablers capture the main drivers of innovation performance external to the fi and differentiate between 3 innovation dimensions:

'Human resources' includes 3 indicators and measures the availability of a high- skilled and educated workforce. The indicators capture new doctorate graduates, Population aged 30-34 with completed tertiary education and Population aged 20-24 having completed at least upper secondary education.

'Open, excellent and attractive research systems' includes 3 indicators and measures the international competitiveness of the science base by focusing on the International scientific co-publications, Most cited publications and non-EU doctorate students.

'Finance and support' includes 2 indicators and measures the availability of financing for innovation projects by venture capital investments and the support of governments for research and innovation activities by R&D expenditures by universities and government research organizations.

Firm activities

Firm activities capture the innovation efforts at the level of the firm and differentiate between three innovation dimensions:

'Firm investments' includes 2 indicators of both R&D and Non-R&D investments that firms make in order to generate innovations.

'Linkages & entrepreneurship' includes 3 indicators measuring innovation capabilities by looking at SME's that innovate in-house and Collaboration efforts between innovating firms and research collaboration between the Private and public sector.

'Intellectual assets' captures different forms of Intellectual Property Rights (IPR) generated as a throughput in the innovation process including PCT patent applications, community trademarks and community designs.

Outputs

Outputs capture the effects of fi innovation activities and differentiate between two innovation dimensions:

'Innovators' includes 3 indicators measuring the share of fi that have introduced innovations onto the market or within their organizations, covering both technological and non-technological innovations and Employment in fast-growing fi of innovative sectors.

'Economic effects' includes 5 indicators and captures the economic success of innovation in Employment in knowledge-intensive activities, the Contribution of medium and high-tech product exports to the trade balance, Exports of knowledge-intensive services, Sales due to innovation activities and License and patent revenues from selling technologies abroad.

Table A4 ▪ Summary Innovation Index of the selected countries over the time

COUNTRY	2010	2011	2012	2013	AVERAGE GROWTH RATE (%)
Sweden	0,74	0,75	0,75	0,75	0,35%
Denmark	0,71	0,70	0,72	0,73	0,89%
Germany	0,70	0,69	0,71	0,71	1,34%
Finland	0,68	0,69	0,69	0,68	1,17%
Netherlands	0,60	0,60	0,64	0,63	1,64%
UK	0,62	0,62	0,62	0,61	0,54%
France	0,58	0,57	0,58	0,57	1,43%
Italy	0,43	0,43	0,45	0,44	2,22%
Spain	0,39	0,40	0,41	0,41	1,43%
Portugal	0,42	0,42	0,40	0,41	3,86%

Source: Based on the European Innovation Scoreboard of the European Union, European Commission (2014)

Appendix 8. The position on the global Innovation index (2015) of the 10 countries with the highest responds.

TABLE A5 ▪ The position on the global innovation index

KEY INDICATOR	BELGIUM	BULGARIA	FINLAND	FRANCE	GERMANY	ITALY	NETHERLANDS	SPAIN	UK	CHINA
Global Innovation index Score 0-100/	50,9	42,2	60,0	53,6	57,0	46,4	61,6	48,1	62,4	47,5
Global Innovation index Rank out of 143	25	39	6	21	12	31	4	27	2	29
Institutions	83 / 19*	70 / 45	96 /1	82 /21	83 /20	74 / 38	92 / 7	75 / 35	87 /14	54 / 91
Political environment	86**	57	99	78	85	65	91	68	78	46
Regulatory environment	80	76	97	87	82	81	97	77	95	50
Business environment	84	76	92	80	83	75	88	80	88	67
Human capital & research	51 / 18	32 / 58	65 / 1	56 / 12	57 / 10	41 / 33	52 / 17	46 / 27	58 / 7	43 / 31
Education	57	44	64	55	54	52	58	55	56	71
Tertiary education	40	39	54	51	48	37	37	43	53	12

Research & development	57	14	77	61	68	36	60	40	63	47
Infrastructure	**53 / 28**	**43 / 53**	**59 /16**	**61 / 12**	**57 / 18**	**58 / 17**	**61 / 13**	**61 / 9**	**63 / 6**	**50 / 32**
ICT	69	41	77	88	73	71	89	78	89	52
General infrastructure	47	38	49	48	45	36	42	38	38	65
Ecological sustainability	42	51	50	47	52	66	50	67	62	35
Market sophistication	**55 / 35**	**49 / 61**	**61 / 19**	**59 / 25**	**59 / 22**	**54 / 39**	**62 / 17**	**65 / 10**	**74 / 3**	**55 / 59**
Credit	37	36	48	43	56	42	54	58	63	32
Investment	38	29	58	48	39	36	42	50	70	37
Trade & competition	90	81	78	86	80	83	89	85	90	79
Business sophistication	**51 / 14**	**36 / 60**	**59 / 4**	**49 / 19**	**49 / 20**	**41 / 39**	**55 / 10**	**38 / 47**	**54 / 13**	**44 / 31**
Knowledge workers	69	43	75	65	59	46	61	54	64	61

Innovation linkages	43	39	49	38	46	39	49	29	53	31
Knowledge absorption	41	28	55	45	42	38	56	32	44	43
Knowledge & technology outputs	**36 / 36**	**35 / 37**	**52 / 11**	**41 / 23**	**53 / 10**	**41/ 22**	**56 / 9**	**40 / 25**	**55 / 8**	**58 / 3**
Knowledge creation	39	26	58	34	65	33	55	31	59	64
Knowledge impact	42	51	44	44	47	54	48	52	59	67
Knowledge diffusion	27	29	54	45	49	37	65	37	48	43
Creative outputs	**50 / 20**	**41 / 34**	**52 / 15**	**51 / 19**	**53 / 14**	**38 / 47**	**62 / 4**	**42 31**	**61 / 5**	**35 / 54**
Creative intangibles	51	54	62	60	55	38	58	48	55	52
Creative goods and services	39	22	28	35	28	27	42	27	48	33
Online creativity	60	35	58	49	73	47	87	46	85	3

*Global innovation index score 0-100 / global innovation index rank

** Global innovation index score 0-100

Based on The Global Innovation Index . Dutta(2015)

Appendix 9 Tables Descriptive Statistics

Table A6 ▪ Cultural values

To what extent does this cultural characteristic apply to your country of residence (1- 6)

1 = doesn't apply at all. 6 = applies completely

VARIABLE	N	MEAN	STANDARD DEVIATION
Large Power Distance	556	3,727	1,3031
Small Power Distance	551	3,967	1,2251
Individualism	553	3,861	1,2898
Collectivism	524	3,624	1,2437
High Masculine	551	3,875	1,2449
High Feminine	543	3,779	1,1884
High Uncertainty Avoidance	486	3,778	1,1962
Low Uncertainty Avoidance	485	3,610	1,1601
Long term Orientation	512	4,080	1,1030
Short term Orientation	553	3,819	1,1993
Indulgence	530	3,970	1,2431
Restraint	546	3,687	1,2918
Monumentalism	512	3,684	1,2720
Openness to Change	571	3,736	1,2971
Self-Enhancement	575	4,337	1,1927
Conservation / Embeddedness	574	4,200	1,2179
Self-Transcendence / Harmony	572	4,201	1,1953
Mastery	568	4,257	1,1241
Egalitarianism	578	4,633	1,1835
Hierarchy	568	3,919	1,3375
Intellectual Autonomy	542	4,231	1,1490

Table A7 ▪ Leadership styles

To what extent is this leadership style valued in your country of residence (1- 6)

1 = is not valued at all. 6 = greatly valued

VARIABLE	N	MEAN	STANDARD DEVIATION
Charismatic	590	4,475	0,9743
Visionary	586	4,495	1,0332
Inspirational	585	4,304	1,0789
Performance oriented	585	4,858	1,0281
Team integrator	563	4,487	1,0424
Participative	575	4,520	1,0572
Autocratic	537	3,507	1,4051
Empowerment and motivating	484	4,380	1,0813
Mentor and coach	574	4,298	1,1411
Stimulator	556	4,245	1,0159
Entrepreuneurial	558	4,525	1,1597
Creative	578	3,976	1,1414
Ambitious	582	4,617	1,0687
Innovative	580	4,590	1,1845
Bureaucratic	578	4,567	1,2871
Controller	558	4,190	1,1711
Coordinator	555	4,450	0,9683
Competitive winning spirit	573	4,377	1,1786
Goal oriented	579	4,858	0,9969
Tough and very demanding	560	3,825	1,3327
Focus on profitability	567	4,705	1,0715
Joint decision making	546	4,405	1,0714

Selling	549	4,122	1,1113
Delegating	558	4,269	1,0649
Telling	552	3,707	1,2981
Developing alliances	518	4,415	1,0142
Willingness to take risks	570	3,842	1,1646
Style awareness	514	3,916	1,1793
Situational sensitivity	535	4,426	1,0156
Style flexibility	544	4,184	1,1874
The ability to anticipate change	554	4,287	1,1687

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Summary

The Impact of Culture on the Innovative Strength of Nations

A cross-cultural analysis of creativity, innovation and entrepreneurship has long been overdue. Increased international competition requires a more frequent assessment of organizational and managerial arrangements, and their cultural roots. Impact of culture upon collective organization of an institutional framework for dealing with creative and potentially valuable inventions has always been tacitly assumed, but less frequently systematically researched. Systematic studies had mostly focused on a comparative analysis of managerial coordination between research universities, business companies and public administration. Differences in the number of patents or start-ups had been recorded on a nation state level, for instance between Japan and the United States, Germany and United Kingdom, where different clusters of institutional links reflected patterns of cultural values. These values have been systematically studied by Geert Hofstede, whose "Culture's Consequences" model of cultural dimensions offers a chance to conceptualize cultural influences upon managerial practices, and applied to organizational analysis and social psychology of management by Schwartz, the GLOBE team and the others.

My personal experiences with different level of innovativeness in the German, UK, Portuguese, Greece, Middle East, West-African and Dutch context led me to work towards a model of the innovative capacity of society. Combining the insights of Cameron & Quinn with the model of knowledge assets of Boisot, I have tried to demonstrate that some cultural values (e.g. Hierarchy, Uncertainty avoidance, Collectivism, Tradition, Conservation, Security and Conformity tend to produce a low innovative capacity, while others (e.g. Low uncertainty avoidance, Low power distance, Individualism, Openness to Change , Self-direction, Stimulation, Intellectual autonomy and Open minded) stimulate a higher innovative capacity. Having analyzed the governance of innovation from a European perspective (with illustrative review of the governance of innovation in 10 EU member states) and having reviewed the theories of the dimensions of national cultures, I had looked for links between culture

and leadership and their possible influence upon innovation at the national level. My quantitative studies led to the tentative conclusions about clusters of cultural values (expressed on dimensional scales like power distance or uncertainty avoidance) and clusters of leadership styles and their impact - through the shaping of organizational culture and management practices, especially leadership - upon “the innovative strength of nations”.

Combined, a more externally focused society with leadership characterized by flexibility and discretion correlates with a high innovative capacity, as opposed to an internally focused society with leadership style characterized by stability and control that correlates with a low innovative capacity.

Studying creativity and innovation from a cross-cultural perspective, I have found that the cultural dimension of individualism-collectivism matters in dealing with creative opportunities. Individualistic cultures tend to emphasize novelty, distinctiveness and uniqueness, which gives them a creative edge. Analytical thinking and radical creativity are also important and their disruptive effects tolerated. In collective cultures there is an emphasis on appropriateness and usefulness, a focus on synthetic thinking and generally speaking, incremental creativity plays a more important role than the radical one.

Supportive and coaching leadership, empowering leadership and transformational leadership seem to have a large impact on follower creativity via increased levels of motivation. Empowerment removes restrictions and boundaries, provides autonomy and encourages employees to realize their potential and initiative, it also influences their entrepreneurial behavior such as taking risks, dealing with uncertainty and enhancing innovation. To face entrepreneurial challenges, employees should be aware of their potential and feel free to use their knowledge, skills and creativity while working together. Positive emotional or mood states created by leaders could lead employees to be more creative in their work. Emotional intelligence of leaders is very important. Controlling supervisor behavior has a negative influence on employee creativity, whereas informational and transformational leadership are likely to boost intrinsic motivation leadership.

Two conclusions stand out: there is a significant correlation between cultural values and leadership styles and both correlate strongly with innovative strength. My findings enabled me to formulate a simple and clear model of the innovative capacity of society, which might provide useful in public discussions about managerial arrangements shaped by leaders offering potential creative individuals and organizations flexibility and discretion as the preconditions of higher innovative outputs in our increasingly knowledge-intensive societies, which require a more precise navigation of information space and a better exploitation of knowledge assets.

Samenvatting in het Nederlands

De invloed van cultuur op de innovatieve kracht van landen

Een cross-culturele analyse van creativiteit, innovatie en ondernemerschap heeft heel lang op zich laten wachten. Toegenomen internationale concurrentie vereist een meer frequente evaluatie van de organisatorische en bestuurlijke ordeningen, en hun culturele wortels. Invloed van cultuur op de gemeenschappelijke organisatie binnen een institutioneel kader voor het omgaan met creatieve en potentieel waardevolle uitvindingen werden altijd stilzwijgend aangenomen, maar minder vaak systematisch onderzocht. Systematische studies zijn meestal gericht op een vergelijkende analyse van de bestuurlijke coördinatie tussen universitair onderzoek, bedrijven en overheidsdiensten. Verschillen in het aantal octrooien van grotere bedrijven en start-ups op landenniveau zijn hierbij het uitgangspunt, bijvoorbeeld tussen Japan en de Verenigde Staten, Duitsland en Nederland, waar verschillende clusters van institutionele banden patronen van culturele waarden weerspiegelen. Deze waarden zijn systematisch bestudeerd door Geert Hofstede, waarvan het " Culture's Consequences" model van culturele waarden kansen biedt voor het conceptualiseren van culturele invloeden op bestuurlijke praktijken, en toegepast op organisatie-analyse en sociale psychologie van het management door Schwartz, de GLOBE team en anderen.

Mijn persoonlijke ervaringen met verschillende mate van innovativiteit in verschillende internationale contexten brachten mij ertoe om te werken aan een model dat het innovatievermogen van een samenleving weergeeft. Door de inzichten van Cameron & Quinn te combineren met het model van de kennisactiva van Boisot, heb ik geprobeerd aan te tonen dat bepaalde culturele waarden zoals hiërarchie, grote machtsafstand, hoge onzekerheidsvermijding, collectiviteit, traditie, streven naar veiligheid en stabiliteit en conformiteit leiden tot een lage innovatieve kracht, terwijl andere zoals lage onzekerheidsvermijding, lage machtsafstand, individualisme, veranderingsgezindheid, intellectuele en persoonlijke autonomie en ruimdenkendheid leiden tot een hoge innovatieve kracht. Na een analyse van het management van innovatie vanuit een Europees perspectief (met illustratieve herziening van het bestuur van innovatie in 10 EU-lidstaten) en van de theorieën van de dimensies van nationale culturen, heb ik gezocht naar de verbanden tussen cultuur en leiderschap en hun mogelijke

invloed op innovatie op nationaal niveau. Mijn kwantitatieve studie leidde tot de voorlopige conclusies over clusters van culturele waarden (uitgedrukt op dimensionale schalen zoals machtsafstand en onzekerheidsvermijding) en clusters van leiderschapsstijlen en hun impact, door de vormgeving van organisatie- cultuur en management praktijken, vooral leiderschap op “de innovatieve kracht van Naties”.

In combinatie, een meer extern gerichte samenleving met leiderschap gekenmerkt door flexibiliteit en beoordelingsvrijheid correleert met een hoog innovatief vermogen, in tegenstelling tot een intern gerichte samenleving met leiderschap gekenmerkt door stabiliteit en controle die correleert met een lage innovatieve capaciteit.

Door het bestuderen van creativiteit en innovatie vanuit een intercultureel perspectief, heb ik geconstateerd dat de culturele dimensie van individualisme-collectivisme bepalend is voor de definiëring van creativiteit. Individualistische culturen hebben de neiging om nieuwheid, onderscheid en uniekheid te benadrukken. Analytisch denken en radicale creativiteit zijn belangrijk en de ontwrichtende gevolgen daarvan worden getolereerd. In collectieve culturen ligt een nadruk op de geschiktheid en het nut en is er een focus op synthetisch denken. In het algemeen speelt de incrementele creativiteit een grotere rol dan de radicale.

Ondersteunend en coachend leiderschap, empowerment en transformationele leiding lijken een grote impact te hebben op creativiteit van medewerkers via verhoogde niveaus van motivatie. Empowerment elimineert beperkingen en grenzen, biedt autonomie en stimuleert medewerkers om hun potentieel te realiseren en tot het nemen van initiatief, het beïnvloedt ook hun ondernemend gedrag zoals het nemen van risico’s, omgaan met onzekerheden en het versterken van innovatie. Om ondernemende uitdagingen aan te gaan, moeten werknemers zich bewust zijn van hun potentieel en zich vrij voelen om hun kennis, vaardigheden en creativiteit te benutten in de samenwerking met anderen. Een door leiders bevorderde positieve emotionele gemoedstoestand bij medewerkers leidt tot meer creativiteit op de werkvloer. Emotionele intelligentie van leiders is zeer belangrijk. Controle heeft een negatieve invloed op de creativiteit van de medewerker. Informatief en transformationeel leiderschap daarentegen stimuleert de intrinsieke motivatie.

Twee opvallende conclusies: er is een significante correlatie tussen culturele waarden en leiderschapsstijlen en beide correleren sterk met innovatiekracht.

Mijn bevindingen hebben voorts geleid tot de ontwikkeling van een inzichtelijk model van het innovatievermogen van de maatschappij, dat gebruikt kan worden bij discussies, analyses en vormgeving van het innovatiemanagement. Het laat zien dat flexibiliteit en beoordelingsvrijheid voorwaarden zijn voor het leveren van een hogere innovatieve prestatie door potentieel creatieve individuen en organisaties waarvan het belang groter wordt nu wij leven in een steeds kennisintensievere samenleving welke een meer nauwkeurige navigatie in de informatieruimte en een betere benutting van kennis en kunde vereisen.

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Biography

Piet J.J. Moonen has extended international experience in the field of Management, Marketing and Innovation of food products. He collected observations and cultivated his special interest in the cultures of countries he visited and where he has lived and worked for more than a quarter of a century. He has intensively travelled and worked in the Middle East, in West-Africa and within the European Union.

His experience with cross-cultural differences increased further when he had the chance to work and live with his family for four years in Portugal. Here he was a Member of the Team of Directors, and responsible for the development of strategic and operational plans, the development of a strong marketing and sales organization and research and development.

As a Senior Lecturer at the Amsterdam University of Applied Sciences he was for 12 years responsible for the international minor “Creating Food Concepts in Europe”. For 5 years he was a member of the Management Team. He taught the topics Entrepreneurship, Intercultural Management, International Strategic Marketing, Innovation Strategies and International Business Ethics.

As a Senior Lecturer at Hogeschool Windesheim, University of Applied Sciences he teaches Management and Intercultural Management, Leadership and Innovation, International Strategic Marketing, Governance of private and public organizations and Research.

He recently was appointed as Lector Circular Entrepreneurship in the Agro and Food Business at Aeres Hogeschool, University of Applied Sciences. Here he is responsible for the research within the Agro and Food Business. He is supervising the research staff and coordinates the knowledge development in the field of circular economy. He writes research proposals and papers and takes care of publications of innovative research in scientific journals.