Effectiveness of Brokering within Account Management Organizations

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Abstract	We present a model that integrates the contradicting Burtian and Krackhardtian broker theories to explain effectiveness of brokering for individuals within account management organizations. Using data on a network of 55 individuals in a financial account management organization, we test how brokerage of different resource relationships and Simmelian trust relationships affect individual effectiveness. We find that although brokering in 'specification' processes enhances effectiveness, it harms to broker in 'delivery' processes. Furthermore, brokers of Simmelian trust relationships appear to face more diverse role expectations, which causes role ambiguity that reduces effectiveness. These results have implications for account management organization.	
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Effectiveness of Brokering within Account Management Organizations

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Effectiveness of Brokering within Account Management Organizations

We present a model that integrates the contradicting Burtian and Krackhardtian broker theories to explain effectiveness of brokering for individuals within account management organizations. Using data on a network of 55 individuals in a financial account management organization, we test how brokerage of different resource relationships and Simmelian trust relationships affect individual effectiveness. We find that although brokering in 'specification' processes enhances effectiveness, it harms to broker in 'delivery' processes. Furthermore, brokers of Simmelian trust relationships appear to face more diverse role expectations, which causes role ambiguity that reduces effectiveness. These results have implications for account management organization.

Introduction

Brokers connect otherwise unconnected others in a network of relationships (Simmel, 1950). There are different conflicting predictions about brokers' effectiveness conflict (Burt, 1992; Podolny and Baron, 1997; Krackhardt, 1999). Interestingly, these contradictory predictions originate from two theories rooted in Simmel's sociological theory (Krackhardt, 1999). The key to this paradox is that the theories describe distinct mechanisms. The first theory focuses on access to resources. Burt (1992) suggests that brokers have better access to resources and hence will be more effective in performing their tasks. The second theory emphasizes that brokers typically face diverse informal role expectations, which could lead to role stress (Krackhardt, 1999). Different meta-studies show that role stress could negatively affect individual effectiveness (e.g., Tubre and Collins, 2000). Hence, it is not straightforward to show whether brokers' net contribution to organizational processes is positive or negative. In addition, the issue of brokers' effectiveness is important for the understudied field of account management organization. Therefore we will confront these two theories as they apply to account management processes.

Organizations introduce account management to focus on the specific needs of important customers (hereafter accounts). The importance of account management follows from the fact that organizational survival and growth of many firms greatly depends on accounts. Also, customers often desire account management. As they rationalize procurement, these customers restrict business to limited sets of suppliers and/or require additional services (e.g., Shipp, Roering, and Cardozo, 1988; Workman, Homburg, and Jensen, 2003). Selling organizations are under pressure to offer and to promptly deliver tailor-made solutions to the specific needs of accounts and hence they introduce account management.

To be effective in account management processes, individuals' access to resources is crucial (1999; Sengupta, Krapfel, and Pusateri, 2000; Workman, Homburg, and Jensen, 2003). For example, Sengupta et al. (2000) show the importance of "intrapreneurship" (see, Pinchot, 1985), which they interpret as the search and acquisition of resources (including human resources) within the organization. We argue that this behavior in account management relates in two important ways to informal networks.

First, informal networks provide access to resources and hence facilitate or hinder intrapreneurial behavior (Hargadon and Sutton, 1997; Hansen, 1999). Secondly, the search and acquisition of resources in informal networks affect the nature of all jobs in account management. In fact, this behavior creates informal role expectations for intrapreneurs as well as for those who hold resources. We emphasize that for account management organizations to meet the needs of accounts, it is important that individuals within account management meet their informal role expectations. In short, networks of relationships transmit expectations

(Nadel, 1957; Merton, 1968) and also allow or impede brokers to realize these expectations (Burt, 2000).

The main contribution of this paper is that it shows how access to specific resources, and diversity in informal role expectations, affect individual effectiveness within account management organizations. Here we define individual effectiveness as the degree to which individuals contribute to the realization of organizational objectives. Burt (1992) and Krackhardt (1999) give (partly) contradictory predictions of individual effectiveness, although they both base these predictions on Simmel (1950). Hereafter, we first describe what we will call the Burtian model and the Krackhardtian model and make underlying hypotheses of these models explicit. Furthermore, we integrate these two models in a more general Simmelian model specification.

Broker Theories

A broker and those he/she connects belong to the same or different organizations. Subsequently, we could discern different types of brokers (Fernandez and Gould, 1994). For example, brokers linking two different organizations, while not being member of either, are liaison-brokers (Fernandez and Gould, 1994). Many studies focus on brokers that represent an organization, (representatives or gate-keepers) (Adams, 1976; Friedman and Podolny, 1992), and show the value to organizations of brokers like purchase managers (Spekman, 1979) or negotiators (Friedman and Podolny, 1992). Here we focus on brokers within one organization, which Fernandez and Gould (1994) call coordinators.

Burtian Broker Theory

Organizations experience many advantages of brokers within their boundaries. For example, they contribute to faster spread of information, wider spread of information, development of innovations, and a better ability to cope with change (Hargadon and Sutton, 1997; Burt, Hogarth, and Michaud, 2000; Gargiulo and Benassi, 2000). These organizational advantages stem from individual advantages that enhance brokers' effectiveness. Based on Simmel (1950), Burt (1992) identifies two types of individual advantages for brokers; information advantage and control advantage. Information advantage includes access to heterogeneous knowledge, timely reception of information, and a wider referral (Burt, 1992). Control advantages occur in three instances, that is, first, when a broker has a resource (including time) that two unconnected others want, second, when he/she wants something both have, and third, when one wants something from the other and can only obtain it through the broker (Simmel, 1950; Burt, 1992). Henceforth, we refer to these effects as the Burtian model.

A recent refinement to the Burtian model is the insight that brokers' advantages depend on relationship contents. Podolny & Baron (1997) suggest that brokers –more specifically, "structural holes" (see Burt, 1992)– are beneficial in networks that conduit resources, but disadvantageous in networks of affective ties. We go even further and suggest that whether brokers' enjoy advantages depends on specific resource types. For example, Hansen (1999) shows that transfer of more tacit knowledge resources within organizations requires strong relationships. Because broker relationships are often weak ties (Granovetter, 1973; Burt, 1992), they may be less appropriate to transfer tacit knowledge resources. Therefore we first need to answer the question which fundamental account management processes can we associate with different types of resources?

Account Management Task Typology. Account management encompasses coordination of marketing and sales efforts between different functional groups, geographic areas, divisions and\or hierarchical levels within the organization (e.g., Shapiro and Moriarty, 1982; Cespedes, 1994; Workman, Homburg, and Jensen, 2003). Different empirical typologies of account management organization have been identified in marketing literature (Shapiro and Moriarty, 1980; 1984a; Dishman and Nitse, 1998; Homburg, Workman, and Jensen, 2000). For most forms of account management organization, matrix organization forms are applied to coordinate inputs from different organizational units (1984b; Shapiro and Moriarty, 1984a). Matrix forms facilitate emergence of (temporal) inter-functional teams in which different specialists cooperate (Galbraith, 1973; Ford and Randolph, 1992). Furthermore, matrix forms offer the autonomy that intrapreneurial behavior requires. In account management these teams coordinate the integration of functional expertise and customer expertise to respond effectively and efficiently to customer needs.

In the setting of account management, we may discern two primary tasks that require fundamentally different types of knowledge resources. First, as account management adds the aspect of the customization to traditional selling, the importance increases of understanding what specific customers need (Workman, Homburg, and Jensen, 2003). Secondly, account management has to deliver tailor-made offerings. It seems that this distinction is fundamental in management literature.

First, the task-dichotomy in account management concurs with the distinction in general management between tasks guided by *what* and *how* questions (Simon, 1957). These questions are respectively associated with 'know what' and 'know how' knowledge, and hence indicate the differences in resources needed to perform these tasks.

Second, the task distinction in account management is similar to the distinction made in services marketing between service specification and service delivery (Zeithaml, Berry, and Parasuraman, 1988). The SERVQUAL model, (Zeithaml, Berry, and Parasuraman, 1988) emphasizes the importance for top management to identify customer expectations and match service offerings accordingly. In account management this task is decentralized at the level(s) that maintains customer relations. The other task explicitly brought forward in Zeithaml et al.'s (1988) model is the delivery of services. After specification (and acceptance by a customer), a service has to get 'produced'.

The specification task is a more explorative task that involves search for possibilities an organization offers to meet accounts' demands. It is the search for and the recombination of knowledge about products, services and processes, which are encompassed within an organization and allow to meet accounts' needs (Nelson and Winter, 1982; Grant, 1996b). As individuals and teams process and reprocess such knowledge they come to a finite solution set that specifies a number of products and\or services.

Specification in account management is a task very similar to innovation processes. Most often comparable to innovation processes that combine existing ideas, processes and products\services or architectural innovations that reorder the relations between existing product components (Henderson and Clark, 1990). Sometimes these processes are literal innovation processes.

The primary type of knowledge transferred between individuals in specification processes could best be characterized as explicit 'know what' knowledge (Ryle, 1949; Polanyi, 1966). It requires transfer of explicit knowledge about what for possibilities an organization has to offer that can serve customers. This differs from the 'know how' needed for delivery tasks.

In delivery tasks account management makes things happen for accounts. Delivery tasks in account management focus on the integration of routine tasks that require 'know how' of products or services and the transfer of this knowledge (cf., Nelson and Winter, 1982; Kogut and Zander, 1992; Grant, 1996a). The routines and skills that make things happen often consist of tacit knowledge (Ryle, 1949; Polanyi, 1966; Nelson and Winter, 1982; Nahapiet and Ghoshal, 1998). Also in account management, the 'know how' needed in delivery tasks has a major tacit component. Specialists in one field usually will not know in detail how to 'produce' services or service components that belong to a different specialist field. Service delivery tasks often require transfer of 'know how', which typically has a larger tacit component.

Let us emphasize that both tasks may need explicit and tacit knowledge. However, we argue that individuals involved in specification tasks will transfer more explicit knowledge, while knowledge transfers between individuals in delivery tasks will have a larger tacit component. We will refer to the different types of knowledge as 'know what' and 'know how', as this more general distinction most closely relates to the distinction between service specification and delivery. The transfers of different types of knowledge make salient the structural characteristics of the transfer relationships.

Brokers in Resource Flows

Hargadon and Sutton (1997) provide a number of examples that show how brokers contribute to innovation processes by recombining ideas. It is not just the amount of 'know what' knowledge that determines the input quality for specification tasks; rather it is the diversity or heterogeneity of 'know what' knowledge. Brokers can contribute in two ways to this variation in knowledge. Brokers' information advantages we earlier mentioned (access, speed, referral) allow them to accumulate more heterogeneous knowledge than non-brokers. Furthermore, brokers' control advantages allow them to influence the informational diversity within teams. They may strategically pass information to a team and may bring in new team members with different backgrounds.

Therefore, we hypothesize

Hypothesis 1: Brokering in 'know what' networks increases the broker's individual effectiveness.

As mentioned earlier, Hansen (1999) shows that tacit-knowledge transfers require strong relationships. Granovetter (1973) was the first to recognize that broker relationships are often weak ties. Indeed, for service delivery tasks teamwork has been found to be especially important (Zeithaml, Berry, and Parasuraman, 1988), which suggests close cooperation. Burt (2000) suggests that brokers within teams typically contribute less to team output than non-brokers. Above we argue that 'know how' needed in service delivery tasks has a large tacit component. Hence, we assume that service delivery tasks thrive well when executed in networks of strong relations and less well in brokering relationships. Therefore, we hypothesize

Hypothesis 2: Brokering in 'know how' networks decreases the broker's individual effectiveness.

Hypotheses 1 and 2 deal with the effective access to resources needed for different processes in account management. They are derived from broker theory in the Burtian tradition that is explicating a direct relation between brokers' structural position and individual effectiveness. Krackhardt (1999) suggests an indirect effect on individual performance through role stress.

Krackhardtian Broker Theory

Brokers face diverse and inconsistent sets of role expectations that may cause role stress and thus harm individuals' effectiveness. (Kahn, et al., 1964; Friedman and Podolny, 1992; Burt, 1997; Krackhardt, 1999). The Krackhardtian model proposes two major points (Krackhardt, 1999). First, relationships embedded in reciprocal triads (Simmelian relationships) more strongly transmit role expectations than isolated dyadic relationships. Second, individuals suffer more inconsistent role expectations when they broker two or more different triads instead of isolated individuals.

Simmel (1950: 135-144) argues that strongly connected triads (smallest possible cliques) differ from isolated dyads in three distinctive ways (see also, Krackhardt, 1999). Compared to individuals in isolated dyads, those in triads give up more of their individuality, bargaining power and face less harsh dyadic conflicts because a third perspective is present that weakens polarization and escalation of conflict. Krackhardt (1999) proposes that Simmelian ties reduce freedom and independence and increase constraints for individuals.

The Krackhardtian model is consistent with social network theory, which states that within cliques, group norms form and are enforced (e.g., Coleman, 1990; Portes and Sensenbrenner, 1993). Cliques enable conditions to monitor behavior, rapidly spread information, and shared opinion formation about norm deviant behavior, also called gossip (Merry, 1984). These conditions evoke norm-compliant behavior, reduce uncertainty and enhance interpersonal trust. Kahn, et al. (1964: 151) suggest that norms are a specific sub-set of role expectations that transcend specific roles. Also, Krackhardt (1999) suggests that group norms anchor rules for the specific behavior expected of each individual. Therefore, expectations formed in cliques are stronger expectations, because they are based on shared cognitions and emotions among clique members. Furthermore, the interrelation of expected behaviors of different individuals suggests that we can refer to them as role expectations.

Krackhardt's (1999) analysis contributes to role analysis in social network theory, because it makes explicit the "… correlation between content and structure" (Lorrain and White, 1971). According, to the Krackhardtian model, triads produce conditions in which role expectations arise. However, he makes not explicit what the contents are of role relationships, although he suggests that trust is strongly associated with Simmelian ties (Krackhardt, 1992; Krackhardt, 1998). In this paper we complement the Krackhardtian model by arguing that a fundamental content of role relationships is trust in intentions.

Trust as Content of Role Relationships. Role theory defines roles in terms of behavioral expectations in relation to others (Linton, 1936). Nadel (1957) emphasizes that roles both encompass "…execution of certain rights and obligations", and, "…this set of rights and obligations embodied in a piece of *knowledge*—in a norm or prescription, or perhaps only in an image people carry in their heads" (Nadel, 1957: 29, italics as in original). Hence, role relationships transmit expectations about ideal type behavior that matches the expected behavior of others.

A role is associated with a role set, which is "…that complement of social relationships in which persons are involved simply because they occupy a particular status" (Merton, 1968: 42). (A status is a formal role, such as account manager or a specific functional specialist). All members of an individual's role set depend to some degree on his\her performance in some fashion (Kahn, et al., 1964: 14). Role set members send expectations to an individual, directly or indirectly, not merely to inform, but to influence a person's behavior (Kahn, et al., 1964: 15). Uncertainty about the performance of team members is always present, and certainly present in temporal teams (Simmel, 1978: 179; Meyerson, Weick, and Kramer, 1996), which we also encounter in account management. Although a formal role provides a base for role expectations relevant to preconceived circumstances, we will argue that informal networks of interpersonal trust provide a basis for (normative) role expectations that govern behavior in the dynamic account management processes.

Interpersonal trust is an attitude of one individual towards another based on perceptions, beliefs, and attributions (Whitener, et al., 1998). Trust is neither based on complete knowledge nor on complete ignorance (Simmel, 1950). Trust is a mix of knowledge and emotions (Lewis and Weigert, 1985), or affection and cognition (McAllister, 1995), that produces expectations about behavioral intentions and competences beyond what knowledge and experience can substantiate (Lewis and Weigert, 1985; Mollering, 2001). Furthermore, detrimental effects may occur to trustor and trustee if these expectations about behavioral intentions and competences are incorrect (Barber, 1983; Lewis and Weigert, 1985). Important here is that we conceptualize trust as a socio-psychological process that produces expectations, and as we will argue, in some instances these are role expectations.

Several authors recognize (not always in the same terms) trust in intentions and trust in ability as two dimensions of trust that may produce normative behavioral expectations (Heider, 1958; Deutsch, 1960). The intention dimension relates to dutiful behavior (Barber, 1983) and loyalty (Dooley and Fryxell, 1999) or norm compliant behavior (Coleman, 1990). Trust in intentions produces expectations about the willingness to comply with behavioral norms. For example, when an individual tries to understand other team members with different functional backgrounds, he/she complies with the group norm to positively contribute to a joint output. The ability dimension relates to competent behavior (Barber, 1983; Dooley and Fryxell, 1999). Trust in ability produces expectations that skills are sufficient such that specific outcomes can be attained.

Although both dimensions of trust produce expectations, we argue that trust in abilities produces no role expectations. Trust in abilities produces expectations about whether an individual is able to perform a specific role, not whether that individual will enact consistent to this role. Furthermore, recall that account management requires cooperation between different specialists on innovative-like tasks. Usually specialists can not obtain from an informal network 'cognitive familiarity' (Simmel, 1978) about the required abilities for a task or whether others possess these abilities. In contrast, trust in intentions does produce role expectations given that the trust relationship has the structural characteristic of a role relationship, i.e. is a Simmelian tie.

Simmelian triads provide knowledge about individuals' intentions to comply with norms. The gossip that occurs in these triads creates cognitive maps of social identities and reputations of individuals (Merry 1984). This knowledge is essential for role expectations to arise. Individuals have cognitive maps that reflect their trust in others willingness to comply with normative behavioral expectations. These maps and emotions are particularly developed with regard to those behaviors of others on which the individual is dependent. Trust in intentions reflects the expectations about the role behavior relevant to the trustor.

Role Ambiguity. As brokers bridge unconnected role set members, it becomes more likely that diversity and inconsistency of role expectations increases. Most susceptible to role stress are brokers of Simmelian ties, hereafter Simmelian brokers (see fig 1), because these relationships are strong transmitters of role expectations. One role stressor occurs when role expectations are incompatible. In these instances a person may experience a psychological conflict, also known as role conflict (Kahn, et al., 1964: 18-21).

*** Insert figure 1 about here***

Another role stressor becomes manifest when individuals experience a lack of information on how to perform the tasks they have to accomplish. In these cases individuals experience role ambiguity (Kahn, et al., 1964: 22-26). Although role expectations could be clear, when information on how to meet these expectations is missing or confusing (possibly because of conflicting expectations), uncertainty for individuals increases, and role ambiguity rises. Unpredictability of future events beyond an individuals' control causes role ambiguity (Kahn, et al., 1964: 72).

Most studies that explore brokers' role stress (including Krackhardt, 1999) focus on role conflict. However, meta-studies show that role conflict not evidently has a positive or a negative effect on job outcomes, while role ambiguity unequivocally has a negative effect on performance (Jackson and Schuler, 1985; Sullivan and Bhagat, 1992; Tubre and Collins, 2000). More specifically, marketing literature suggest that especially role ambiguity resulting from internal organizational sources, such as bosses or co-workers, negatively affect sales persons job outcomes (Rhoads, Singh, and Goodell, 1994). Therefore, in contrast to earlier work on the relation between role stress and brokers, we focus on role ambiguity.

Three conditions are essential for the predictability of future outcomes and hence the absence of role ambiguity. These are, first, the ability to anticipate consequences of actions (desired and unwanted), second, the awareness of determinants of, and, likelihood of relevant events not self-produced, and third, the dependence on the stability of surrounding conditions (Kahn, et al., 1964: 72). We suggest that for Simmelian brokers all three conditions are less certain than for non-Simmelian brokers as their behavior is under scrutiny of norms that are upheld by different triads. These norms could be conflicting (Krackhardt, 1999). Also, because roles are not enacted all at once, but in a process over time (Nadel, 1957: 29-30), dealing with different sets of norms might cause uncertainty and confusion. In short, role-consistent behavior is complex for Simmelian brokers.

Three examples will illustrate that Simmelian brokers are more likely to face the conditions under which role ambiguity arises. First, Simmelian brokers can easily be surprised by adversary actions of one triad because of actions in other triads. Past behavior consistent with norms in triad *A* at moment *t*, might become known to, and be disapproved of, by triad *B* at time *t*+1 (see also Wittek, 1999, on relational signaling). Second, Simmelian brokers are likely to have less in-depth knowledge about the norms in each triad, as they face more different sets of norms. Especially, when we consider that norms are dynamic, we may infer that Simmelian brokers are less aware of determinants of relevant events (e.g. change in norms) and make less good judgment on the likelihood of occurrence. Third, the threat of social retaliation after norms have been breached, say judgmental gossip or exclusion from a triad, makes "surrounding conditions" less stable (see also, Lindenberg, 1998). For example, access to a crucial resource a Simmelian broker derives from one triad may suddenly diminish when he/she harms behavioral norms of that triad . Therefore, we hypothesize

Hypothesis 3: For Simmelian brokers in networks of 'trust in intentions' role ambiguity increases.

And, in line with earlier findings, we hypothesize

Hypothesis 4: Role ambiguity negatively affects job performance.

Note that the Burtian model and Krackhardtian model are conflicting in their predictions of brokers' effectiveness, although the causal processes they both describe are not conflicting.

Actually, Burtian broker theory much ignores the indirect effects of trust brokerage, while Krackhardt (1999) neglects the issue of relationship contents. As both theories are based on Simmel (1950), we argue that a model that merges the Burtian and Krackhardtian models will better fit the data than either of the separate models. The merged model that theoretically would be most appropriate we call the Simmelian model.

A second point to emphasize is that both models differ in the way they conceptualize brokering. From the difference between structural characteristics of relationships (Simmelian vs. raw ties) follows that the proposed measures differ. This fact allows us to test and compare the performance of the different models.

In our empirical analysis we will control in each model for the effects of the competing model. We will operationalize the models according to the system presented in figure 2. In the Burtian model, we will use Burt's measure for brokerage, while we develop a individual level measure of Simmelian brokerage consistent with Krackhardt (1999).

*** Insert figure 2 about here***

Method

In this section we describe our data, we develop a Simmelian broker measure and discuss the other measures we use. Furthermore, we develop four systems of equations to test our hypotheses, and compare the Burtian, Krackhardtian and Simmelian model. We describe different statistical tests that we use to draw inferences.

Setting. We collected our data in the setting of account management in a large bank in a Western-European metropolitan area. Especially, we focus on the segment of personal financial affairs of financial successful individuals and families, such as entrepreneurs, physicians, lawyers, and artists. In this setting, account management mostly deals with personal financial needs and its effects on business finance. Examples are the management and construction of mortgage arrangements, pension plans and investment portfolios. In the account management organization, functional specialists and account managers cooperate to deal with these customers.

The network includes 57 employees divided over 4 specialist departments and 1 department with account managers. This network boundary has been set after consultation with the local management team. We decided to include those specialist departments that directly contribute to service specification and service delivery tasks.

The account managers operate in one out of six teams, where each account manager has assistance of one or two ‘internal account managers’, who support in advice and clerical duties. Each account team is responsible for a relative large number of customers (100 to 150). Certain technical characteristics, such as complexities in tax regulations, sizable risk and the intertwining of personal and business finance, make it necessary for the account managers to bring in support from one or more specialists.

Specialists also have to deal with the requests of account managers operating in other market segments, and some have to deal with external intermediaries or directly with customers. Such an organization implies that all individuals to some degree are involved in the two tasks under consideration. For us this offers an unique opportunity to include all the individuals in our analysis as they all contribute to the final outcome.

Measurement. A questionnaire has been developed that measures role ambiguity, individual effectiveness, the resources and trust networks. Also, we measure some control variables, to secure against spurious effects. Our network selection approach allows us to sharply define the network boundary (Marsden, 1990). We could identify all 57 individuals involved in specification and delivery tasks in account management during the six months prior to the moment of data collection and who were still employed by the organization.

Individual effectiveness, trust, and, resource networks have been measured with questions in roster format. A question in roster format asks respondents to answer the question with regard to a given list of individuals. A full response on these questions ensures the measurement of the entire predetermined network. This way of data collection makes it less biased as opposed to ego-centered data collection where we would ask individuals to list their own networks (Wasserman and Faust, 1994). Furthermore, role ambiguity has been measured with the classical psychometric scale developed by Rizzo, House and Lirtzman (1970).

The final response on the roster questions has been 96% (55 respondents). This response rate was achieved by telephonically contacting non-respondents after two weeks. We cautiously inquired if there were any specific reasons why they did not reply. The primary answer was that respondents lacked time. Some non-response was based on concerns about confidentiality. We could sufficiently neutralize most of these concerns by restating that nobody besides the researchers would see the results at an identifiable individual level. The main argument we used was that it would be extremely detrimental to the researchers' reputation to violate this confidentiality. We were then able to ask for a commitment to respond after emphasizing the importance of a (near) 100% response rate for this type of research. The maximum number of these personal reminders was 5. Data collection effectively took 7 weeks.

Endogenous Variables

Individual effectiveness. Recall that we define individual effectiveness as the degree to which individuals contribute to the realization of organizational objectives. To measure individual effectiveness we asked respondents to give their opinion on the performance of those they had cooperated with in the last year. As areas of contributions vary over individuals we asked respondents: "Please consider those of the people listed below with whom you have cooperated to serve a customer in the last six months. How successful was this cooperation for the organization?" In the heading for this question we explicitly describe organizational success as: "Organizational success relates to success for [company name] such as generating profits, customer retention or increasing customer satisfaction as a result of cooperation." Company informants confirmed that these were important objectives for the firm. Respondents rated the level of success on a 5-point scale (1 = very negative, 2 = negative, 3 = no attribution to success, 4 = positive and 5 = very positive).

We calculate the perceived contribution to organizational performance of individual i (OP_i) as the inter-rater average. Note that OP_i gives a score that does not depend on the self-perception of the focal individual and it depends only on those that could have formed role expectations about his/her effectiveness.

To examine to what extent this single item\multiple rater measure unambiguously captures individual effectiveness we check its concurrent validity. For this purpose we use a database on the sales of four services for which the account managers in the sample were responsible. This database only contains information on about 1000 actual sales of the 6 account managers in the six months preceding the distribution of the questionnaire. We constructed performance measures that are comparable across the different services through mean normalization and averaging the sales figures into 24 (6 account managers × 4 services) comparable performance measures.

Theoretically, we can relate each account manager’s sales in the 4 service categories to clusters of service specialists that cooperated with the account manager in establishing these sales. In practice we could identify 23 ‘account manager-service’ clusters of specialists, because one account manager had no sales in a specific service category and no relationships with specialists on that service category. Subsequently, we calculated the average perceived performance in each cluster. We compare these 23 perceived performance values of the account managers with the associated 23 performance indicators from the sales database.

To check for concurrent validity we calculate the Kendall's tau-b correlation between the actual and perceived performance measures. This correlation is a rank order correlation that compares all possible pairs for both variables. This implies that n(n-1)/2 pairs are to be compared, where n is the number of performance measures (here, n=23). A concordant pair is a pair of observations, which has the same sign for the difference between both variables. For example, $X_1 - X_2$ and $Y_1 - Y_2$ are either positive or both negative. A discordant pair corresponds to opposite signs, when $X_1 - X_2$ is positive (negative) while $Y_1 - Y_2$ is negative (positive). The odds ratio between concordant and discordant pairs determines the value of the Kendall tau-b correlation coefficient.

For our performance measures we obtain a Kendall tau-b correlation of .31, which corresponds with a one-sided *p*-value of .02. We use a one-sided test because we expect a positive relation. This result supports concurrent validity. To calculate the odds ratio, we ignore pairs that have zero difference on one or both variables. The odds ratio between concordant and discordant pairs is about 2, which implies that 2 out of 3 pairs have the same sign.

This result gave us confidence that our single item\multi-rater measure is a good indicator of individual effectiveness.

Role Ambiguity. We measure role ambiguity by adapting the 5-point scale items from Rizzo, House and Lirtzman (1970) (see table 1). We use confirmatory factor analysis to assess the contribution of the items to the scale to derive a one-dimensional scale. Also, we examine the scale on internal consistency.

*** Insert table 1 about here ***

Initial confirmatory factor analysis of the role ambiguity scale reveals low contributions of item 1 and 4 (see table 1). However, the fit statistics and a-value indicate one dimensionality and sufficient reliability for this scale ($?^2$= 9.69, df=14, p=.78, RMSEA=.00, AGFI=.90; a=.72).

Explanatory Variables. To measure the resources networks we asked "How often do you request 'specification' information?" and "How often do you request 'delivery' information?". In the introduction to these questions we defined the terms 'specification' and 'delivery' in terms that are familiar to the industry. The trust in intention and trust in ability networks we measured with the questions "Do you trust that they keep your interests in mind?" and "Do you trust in their competences and abilities?" respectively. Associated with these questions was the full list of individuals and a 5 point Likert-like scale.

We used the data derived from these questions to construct the broker measures and control (instrumental) variables. To test hypothesis 1, 2, and 3, we use the measure of constraint (Burt, 1992) and develop a measure of Simmelian brokerage. We first discuss the measure of constraint proposed by Burt (1992) and subsequently the measure for Simmelian brokerage.

Constraint is a negative measure of brokerage opportunities. It reflects the degree to which individual *i* faces a lack of broker opportunities because he/she has few relationships and his/her contacts are mutually connected. To capture the first factor, we calculate the strength of the relationship between individual *i* and *q*, relative to the aggregate strength of relationships in which *i* is involved with individuals *j*, that is,

$$p_{iq} = \frac{(z_{iq} + z_{qi})}{\sum_j (z_{ij} + z_{ji})} \qquad i \neq j, q \in j, j = 1, \ldots, n_i, \qquad (1)$$

were z_{ij} is the valued element in the matrix Z that indicates the strength of the relation between *i* and *j*, and there are n_i individuals in the network surrounding *i*. As n_i increases, the average p_{iq} decreases.

The constraint measure is subsequently calculated in three more steps. In the first step, based on the relative strength of relationships, we combine the lack of brokerage due to few relationships with a measure of the degree to which individuals are mutually connected. The measure captures the relative strength of the direct and indirect relationship between *i* and *j*.

$$p_{ij} + \sum_q p_{iq} p_{qj} \qquad q \neq i, j \qquad (2)$$

As the relative strength of the direct and indirect relationship between *i* and *j* increases, the latter to a greater extent constrains *i*'s brokerage opportunities

In the second step, Burt (1992) suggests to square expression *(2)*, that is,

$$(p_{ij} + \sum_q p_{iq} p_{qj})^2 \qquad q \neq i, j \qquad (3)$$

which puts relatively extra weight on relationships that are both relatively strong directly as well as indirectly.

The extent to which each individual *i* faces a lack of broker opportunities, constraint is the aggregate of *(3)* over *j*,

$$c_i = \sum_j [(p_{ij} + \sum_q p_{iq} p_{qj})^2] \qquad q \neq i, j \qquad (4)$$

where c_i is constraint. Based on *(4)* we derive constraint variables for all three (explanatory) networks, 'know what', 'know how' and 'trust in intentions'.

A second broker measure we consider is based on the Simmelian brokerage reported by Krackhardt (1999). However, Krackhardt (1999) defines no measure for Simmelian brokers at an individual level. Therefore, here we derive just such a measure that we feel is consistent with Krackhardt's theory and comparable to Burt's measure of constraint.

A first design restriction we face is that the measure should consider valued relations, as does Burt's constraint measure. We therefore specify Simmelian ties as,

$$s_{ij} = (y_{ij} + y_{ji}) \otimes (\sum_q (y_{iq} y_{qj})) \qquad \vee\, y_{ij} \begin{cases} 0 & \forall z_{ij} = 0 \\ 1 & \forall z_{ij} > 0 \end{cases} \tag{5}$$

where, $\otimes$ is a Boolean operator that produces 1 if both terms are larger than 0, and 0 otherwise. Furthermore, valued Simmelian ties are specified as,

$$sv_{ij} = s_{ij}(z_{ij} + z_{ji}) + \sum_q s_{ij} s_{iq} s_{jq} (z_{qj} + z_{jq})) \tag{6}$$

Of course, many other specifications are possible. For example, the addition of $\sum_q s_{ij} s_{iq} s_{jq} (z_{iq} + z_{qi})$ to (6) would give a measure of the total value of the Simmelian triads *i* and *j* are both members. Also, different multiplicative measures would be possible. However, (6) gives the most simple measure that captures the most important aspect of a Simmelian triad. The source of direct constraint of the Simmelian tie lies in the strength of the relationship between *j* and *q*. The relationship between *i* and *q* adds indirect constraint to the relationship between *i* and *j*. Analysis with more complex measures than (6) did not improve our results, and are not reported.

We derive from (5) and (6) the count and value of the Simmelian ties that *i* brokers for *j*. First, the number of Simmelian broker ties is,

$$sb_i = \sum_q s_{ij} (s_{iq} s^c_{qj}) \tag{7}$$

where, s_{qj}^{c} is the complement of s_{qj}, meaning that if the latter is 1 the former is 0, and vice versa.

Second, the value of Simmelian broker ties is

$$svb_{ij} = \sum_{q} s_{ij}(sv_{iq} s_{qj}^{c}) . \qquad (8)$$

Hence, summing over *j* gives the total number and value of Simmelian broker ties in which *i* is the broker. Here, we take this sum as an indicator for the degree to which *i*' occupies a Simmelian brokers.

Instrumental and Control Variables. We measure individual effectiveness as the average in-tie strength of performance feedback. Therefore, we should control for average tie strength. Especially, as both brokerage measures are affected by tie strength, we need to control for the effects of average tie strength. Therefore we control for tie strength of the explanatory network variables. Furthermore, as an instrumental variable we use average in tie strength of trust in abilities. We do not control for average in-tie strength of trust in intentions, because role ambiguity is a self-rated variable in contrast to individual effectiveness.

Another set of control variables we will use are diversity measures, because broker measures could be interpreted as diversity measures. We control for the spurious effects that broker measures could induce, because of association with diversity based on formal roles. Especially, we control for diversity in departments, functions, and function tenure.

We use two measures of diversity that are appropriate for nominal (department and function) and continuous data (function tenure) (Allison, 1978). We calculate the coefficient of variance for each individual, based on the set of co-workers that have been working with that individual for the last year (derived from the network questionnaire). Diversity in function and department were measured for the same sets of individuals, with a measure of entropy,

$$H_i = -\sum_{k=1}^{m} P_{ki} \ln(P_{ki}), \qquad (9)$$

where P_{ki} is the proportion of co-workers of i in the nominal category k.

Finally, we also use "function tenure" and "year of last education" to control for individual attributes suggested to affect role ambiguity. Indeed, greater working experience and experience in a specific function will be expected to negatively influence role ambiguity. Also, these indicators have been related to performance.

System Specification and Tests. To evaluate our hypotheses we estimate four systems of equations, which follow from the models discussed above. Furthermore, we will select one model that best describes the data to compare empirical applicability of the different theoretical perspectives. Again we want to emphasize that Burtian and Krackhardtian models are complementary, but also competitive as they describe different causal processes of brokers effectiveness (direct and indirect). We control for competitive effects by specifying systems, which include the two equations that reflect the processes proposed in the two models. The systems are distinct in the broker measures they encompass in their equations.

We consider 4 systems. The first system is the Burtian system and we use in both equations Burt's (1992) constraint measure as a negative measure of brokerage opportunities. The second system is the Krackhardtian system. Here we use the Simmelian broker measure developed in the previous section. The third system we consider is the Simmelian system that combines Burt's and Krackhardt's theory. This system encompasses both the constraint in the first (Burtian) equation and the Simmelian broker measure in the second (Krackhardtian) equation, as our theory suggests. Finally, we formulate the full system, which includes both constraint and Simmelian broker measures in both equations.

In general terms the equations can be expressed as:

$$p_i = a_a + b_1 ra_i + b_2 BI_i + b_3 C_{ai} + e_i \tag{10}$$

$$ra_i = a_b + g_1 BT_i + g_2 C_{bi} + m_i \tag{11}$$

where, the i index refers to the individuals, p_i and ra_i are individual effectiveness and role ambiguity variables, respectively. BI_i and BT_i are vectors of variables of brokers in information and trust networks, respectively. C_{ai} and C_{bi} are vectors of instrumental variables specific to equation 1 and 2, respectively. Finally, the Greek letters indicate the coefficients and the equation residuals.

We estimate these systems with generalized method of moments (GMM) and use White's adjustment for heteroskedasticity (EViews, 2002). The advantage of GMM estimation over GLS or maximum likelihood (ML) estimation is that it makes less restrictive distributional assumptions. As we estimate systems of equations, which each might have a different data generation process, GMM would give most efficient estimates. This is especially important, because our dataset contains 55 observations within one organization.

As the Burtian, Krackhardtian and Simmelian system are non-nested, we use the full system as a benchmark to compare the other systems. More specifically, we use a likelihood ratio test to assess the significance of decrease in the determinant of the residual covariance matrix to see whether the full model improves on different systems.

However, as these tests might be inconclusive to choose between systems, we also use a systems variant of the J-tests for direct comparison of non-nested models (Davidson and MacKinnon, 1993). The rationale behind the J-test is twofold. First, if a system A describes the data generating process (DGP) correctly, the explanatory contribution of a competing system B should not be significant. And, second, if system A describes the DGP correctly its explanatory contribution to system B should be significant. Hence, in this test two conditions must be met to select one non-nested model over another.

However, as we are considering a system with two equations, the specification of one equation might be appropriate, while the other specification is not appropriate. In our case, the Simmelian system has one equation in common with both the Burtian and Krackhardtian system. Hence, we need to estimate the individual and simultaneous contributions of the Burtian and Krackhardtian system to the Simmelian system, which thus gives three estimates. This is the first part of the J-test. Subsequently, following the J-test rationale we check the contribution of the Simmelian system to the Burtian and Krackhardtian system. As both the latter systems each differ only in one equation from the Simmelian system this amounts to applying the basic J-test (Davidson and MacKinnon, 1993).

Results

Table 2 shows the correlations of all variables used in this study. As some correlations exceed .75 (Tsui, et al., 1995), we have normalized our data to guard against perils of multi-collinearity.

The results of our system analysis are presented in table 3. The top panel of table 3 presents the specifications of equation 1 that describe the "Burtian" effects on individual effectiveness. A result consistent across all system specifications is that role ambiguity has a negative effect, as was predicted in hypothesis 4. This result is consistent with earlier findings on the relation between role ambiguity and job outcomes.

Interestingly, the Burtian system does not support hypothesis 1 (-.810, $p > .10$), but does support hypothesis 2 (1.074, $p < .05$). This might be a consequence of system misspecification, because we use constraint instead of the Simmelian broker measures in the second equation. The results of the Simmelian system (the theoretically appropriate specification) support both hypothesis 1 and 2 (respectively, -1.068, $p < .10$, and 1.189, $p <$

.05). A salient detail is that when we replace the Burtian measure of constraint with our measure for Simmelian brokers, we find strong support for hypothesis 1 (.118, $p < .01$), but also a weak significant opposite effect for hypothesis 2 (.166, $p < .10$). This would suggest, at least with regard to 'know what' knowledge that our Simmelian broker measure better captures brokerage advantages than constraint. This idea is supported by the results in the full model, which show significant effects for constraint in the 'know how' network (1.301, $p < .05$) and for the Simmelian broker measure in the 'know what' network (.131, $p<.001$).

The second panel of table 3 presents specifications of equation 2 that describe the "Krackhardtian" effects on role ambiguity. The Burtian system does not show support for hypothesis 3, which is not surprising as the Burtian model in essence makes no explicit statements about role ambiguity. The Krackhardtian model does explicitly focus on role ambiguity and the Krackhardtian system supports hypothesis 3 (.201, $p < .001$). Also, in the Simmelian system and the full system there is support for hypothesis 3.

The bottom panel of table 3 presents summary system statistics. The DRC (determinant of residual covariance) is the systems equivalent of the residual variance in single equation models. The likelihood-ratio test shows that the Burtian system explains significantly less system variance than the full system. However, this test is inconclusive about the relative performance of the Krackhardtian and Simmel systems compared to the full system. To further assess which of these systems of equations provides a better description of the processes in the Burtian and Krackhardtian model, we perform a J-test.

*** Insert table 4 about here***

Table 4 presents the results of the J-test. We left out the coefficients of the systems variables in this table and focus on the coefficients of the dependent variable estimates. Recall that in the J-test we add estimates of dependent variables from one system to another system. Columns 2 to 4 show that the role ambiguity estimate (Burtian system) in equation 2 and individual effectiveness estimate (Krackhardtian system) in equation 2 and equation 1 in the Simmelian system respectively are not significant, neither alone, or in combination. However, column 5 and 6 show that when we add estimates from the Simmelian system to the Krackhardtian and Burtian system they become significant. This result suggests that the Simmelian system outperforms both the Burtian and Krackhardtian systems.

Discussion

The analysis conducted on data in a financial account management organization supports our theoretical claims. In account management informal role expectations and access to resources are important determinants of individual effectiveness. In accordance with earlier suggestions this study shows that resource brokering in service specification processes increases effectiveness. However, at least in one important process in account management (service delivery) resource brokering seems to decrease individual effectiveness. Furthermore, especially Simmelian brokers suffer from higher degrees of role ambiguity, which also decreases individual effectiveness. These contradictory theoretical predictions are separately captured in the Burtian model and the Krackhardtian model. Our analysis shows that neither model fully explains individual effectiveness of brokers. It is the Simmelian model that merges the Burtian and Krackhardtian model that shows best fit for our data. On the one hand, it shows that, depending on the resources ('know what' or 'know how' knowledge), brokering increases individual effectiveness. On the other hand, Simmelian brokers face more dysfunctional role ambiguity, because they face more diverse role expectations.

This paper makes several theoretical contributions to the existing literature. One theoretical contribution is that we further develop Krackhardt's (1999) idea on Simmelian brokers. Using Simmel's (1950; 1978) ideas on trust and insights of modern role and trust theory, we propose that trust in intentions is a necessary component of Simmelian ties. Another theoretical contribution is that we identify two major knowledge resources in account management, which are respectively good and badly accessible to brokers.

Using these theoretical insights on the crucial relationship contents, the main contribution of the paper is that we present a more complete model of broker effectiveness. This model is rooted in Simmelian sociology and consistent with both Burtian and Krackhardtian theory. Especially, as we show the empirical validity of this model and its superiority over competing models, this adds to our contribution.

Our dataset is unique in that we found a specific type of account management organization where all individuals are almost equally involved in both specification and delivery processes. Certainly, in other industries and organizations formal organization could separate these processes among different individuals. However, this will not change the implications of our findings. Indeed, a change in formal structure could be a consequence of our results. An organization might give greater autonomy to those that are required to behave more intrapreneurial, while it stimulates the formation of teams for those who need to get things done.

Another interesting point that came forward in our analysis is that the Simmelian broker measure in a 'know what' resource network explains performance better than the Burtian constraint measure. This could be a statistical artifact, however we feel this point deserves some further attention. Recall, that constraint measures the lack of broker opportunities among individuals' relationships. This also includes the lack of opportunity to broker Simmelian ties. In fact, constraint aggregates lack of all broker opportunities (although not in a linear fashion). Our results at least suggest that it might be fruitful to develop propositions about how the opportunity for brokering structurally different types of relationships contributes to different processes. A question could be: what are the effects of brokering semi-Simmelian ties (not all ties in the triad are reciprocated) in different resource networks?

A limitation of our study is that we do not identify the nature of specific role expectations. The scope of possible relevant behavioral expectations is broad, for example, in terms of ethical behavior, commitment and solidarity. This is important because we know that informal group norms that develop in cliques may be incongruent with organizational interest (Friedkin, 2001). Exploring more explicitly the inconsistencies between formal and informal expectations could improve the development of account management organization.

Furthermore, we limit our study to brokerage within organizations. The importance follows from the early qualitative works of Shapiro and Moriarty (1984b), who emphasize that "… the ability of the national account managers to gain respect and credibility with the customer, to build a relationship with the customer's buying influences, and to gain sales will be dependent to a great extent upon his or her ability to make things happen in his or her own company." However, in account management the boundary spanning role is at least as important. Indeed, Shapiro and Moriarty (1984b) continue with, "… the account manager's ability to make things happen in his or her own company depends on his or her ability to build customer relationships and to sell." Especially in business-to-business account management, external brokerage within a customer organization might become a more important influence on individual effectiveness. A restriction on our dataset is that it describes a business-to-consumer account management and hence we could not assess the effects of external brokerage.

A third limitation concerns the fact that our analysis is static. It could however be easily expanded to a dynamic assessment of the Burtian, Krackhardtian and Simmelian model. In our analysis there is no need to model the relation between strength of trust and Simmelian ties. However, the trust brokers receive is likely to be in a constant state of flux. As Simmelian brokers have a hard time dealing with diverse expectations they might loose trust of other triad members. As a trust decline reduces expectation strength it becomes easier for brokers to meet such less stringent expectations. This in turn will increase trust, which produces expectations that again will be harder to meet. Furthermore, although brokers receive less trust from their triad co-members, this is not necessarily so vice versa. This implies that it could be harder for triad members that are no Simmelian broker to meet expectations. In short, the study of trust balances and unbalances in a dynamic setting, offers plenty of opportunities for further research.

There are many implications of these results for account management organizations and the individuals these organizations employ. For example, it is important to design account management organizations such that they optimize the benefits of brokers. This means maximizing brokerage in specification processes and minimizing brokerage in delivery processes. As restrictions to this optimization are organization-specific—number of accounts, number of specialist areas, complexity of product/service, ratio of importance of specification and delivery processes—many different optimal designs may result.

Also the activity of "networking" seems more consequential than one might expect. Connecting to different groups may bring the cost of higher role ambiguity. Making employees aware of these consequences and learning them to cope with these consequences may enhance organizational performance. Furthermore, these results may guide human resource officers in recruitment, development and integration processes.

Organizations that consider introducing account management should take notice of these results. The costs to reduce the ineffectiveness of brokers or to optimize the use of brokers within an account management organization could be high. To balance these cost accounts should generate sufficient revenues. Indeed, whether the costs associated to the design conditions that this study implies for effective account management organizations can be covered by revenues from potential accounts, is an important decision criterion for introducing account management.

Conclusions

This paper shows that brokers in 'know what' specification networks enjoy advantages that enhance their individual effectiveness. However, brokers in 'know how' delivery networks are at a disadvantage and have more difficulty meeting informal role expectations. Two fundamental processes in account management are specification and delivery processes. The former requires more 'know what' knowledge, while the latter requires 'know how' knowledge.

Furthermore, we show that trust in intentions is a necessary component of Simmelian role relationships. These Simmelian ties transmit strong role expectations to individuals. As a consequence, Simmelian brokers in networks of trust in intentions suffer higher degrees of role ambiguity than non-brokers. Consistent with earlier findings, we show that role ambiguity negatively affects individual effectiveness.

We build our argument on the models of Burt (1992) and Krackhardt (1999). Following Podolny and Baron (1997) we expand the basis of their arguments by diversifying relationship content.

This analysis is of great importance as within account management literature emphasis has been put on the 'intrapreneurial' behavior. Network literature shows that brokers do have intrapreneurial advantages (Burt, 1992). We emphasize that these advantages can only be obtained in networks that conduit specific types of resources. In account management these resources are needed in specification processes. When individuals in account management need to provide input for delivery processes they need resources that are less well obtainable for brokers. Implications for organizations that use account management to serve their most important customers may be so diverse as if they involve organization design, human resource management and "networking" strategies of individuals.

Tabel 1: Factor Loadings Role Ambiguity

Items[a]	Factor Loadings
1. I feel certain about how my performances will be evaluated	.20
2. Explanations are clear about what has to be done	.63
3. I feel certain about how much authority I have	.50
4. I know that I have divided my time properly	.05
5. I know what my responsibilities are	.62
6. For my job there exist clear planned goals and objectives	.49
7. I know exactly what is expected of me	.63
	α=0.72

[a] Items 1 to 7 are reverse scored.

Table 2: Pairwise Correlation Matrix

		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	Performance	.098	-.274	-.321	.147	.261	-.301	.160	.317	.248	.160	-.231	.118	-.305	.012	.148	.742
(2)	Role Ambiguity		-.130	-.161	.465	.352	-.215	.065	.252	.058	.224	-.206	.379	.217	-.363	.332	.065
(3)	Constraint Know What			.744	-.371	-.292	.030	.173	-.426	-.285	-.645	.692	-.429	.120	.031	-.189	-.236
(4)	Constraint Know How				-.446	-.344	.156	.251	-.398	-.339	-.575	.631	-.460	.344	.034	-.142	-.233
(5)	Simmelian Broker Know What					.592	-.182	.047	.032	-.021	.376	-.409	.810	-.096	-.013	.119	.022
(6)	Simmelian Broker Know How						-.172	-.036	.140	.066	.320	-.321	.410	-.110	-.115	.013	.198
(7)	Out Tie Know What							-.034	-.056	-.155	.197	-.032	-.145	.125	-.080	-.212	-.230
(8)	Out Tie Know How								-.232	-.094	-.331	.210	.072	-.071	.028	-.100	.064
(9)	In Tie Know What									.578	.252	-.359	.097	-.106	-.100	.391	.485
(10)	In Tie Know How										.102	-.141	-.023	-.198	.088	.360	.429
(11)	Diversity Department											-.625	.368	.106	-.255	.206	.125
(12)	Constraint Trust Intentions												-.531	.098	.182	-.099	-.242
(13)	Simmelian Broker Trust Intentions													-.105	-.097	.152	.022
(14)	Function Tenure														-.213	-.006	-.284
(15)	Year Education Finished															-.139	-.074
(16)	Diversity Function Tenure																.182
(17)	Average Received Trust in Abilities																

Table 3: Performance-Role Ambiguity Systems[•]

Equation 1: Performance	Burtian System	Krackhardtian System	Simmelian System	Full System
Constant A	.444	.001	.282	.598
	(.483)	(.081)	(.425)	(.505)
Role Ambiguity	-.730**	-.694**	-.438*	-.527*
	(.240)	(.237)	(.191)	(.232)
Constraint 'Know What'	-.810		-1.068†	-.745
	(.643)		(.622)	(.671)
Constraint 'Know How'	1.073*		1.189*	1.301*
	(.524)		(.497)	(.507)
Simmelian Broker 'Know What'		.118**		.131***
		(.035)		(.029)
Simmelian Broker 'Know How'		.166†		.105
		(.096)		(.106)
Know What Out Ties	-.468**	-.355**	-.365**	-.377**
	(.144)	(.116)	(.137)	(.128)
Know How Out Ties	.419***	.366***	.361***	.350***
	(.110)	(.099)	(.102)	(.093)
Know What In Ties	.466***	.446***	.338**	.430***
	(.121)	(.111)	(.117)	(.110)
Know How In Ties	.131	.244*	.197	.176
	(.114)	(.118)	(.119)	(.106)
Departmental Diversity	.459*	.352**	.433*	.390*
	(.185)	(.102)	(.171)	(.157)
Equation 2: Role Ambiguity				
Constant B	-.091	.760*	1.092***	1.195
	(.811)	(.330)	(.294)	(.745)
Constraint Trust in Intentions	-.822			.173
	(.716)			(.653)
Simmelian Broker Trust in Intentions		.201***	.185***	.196***
		(.039)	(.038)	(.040)
Function Tenure	.153*	.182**	.172*	.171**
	(.071)	(.056)	(.066)	(.060)
Year Education Finished	-.566**	-.620*	-.801***	-.726***
	(.180)	(.245)	(.227)	(.197)
Diversity Function Tenure	.205**	.229*	.235*	.227**
	(.073)	(.089)	(.092)	(.079)
DRC	.327	.276	.280	.275
J-statistic	.729	.691	.587	.737
LR-test DRC	7.325†	.112	.798	
Equation 1				
R-squared	.170	.226	.330	.347
Adjusted R-squared	- .026	.044	.173	.143
Equation 2				
R-squared	.261	.374	.364	.364
Adjusted R-squared	.183	.308	.297	.278

[•]Data are normalized, Instrumental variable: Average Trust Abilities
Standard errors in parenthesis
†)p<.10,*)p<.05,**)p<.01,***)p<.001
DRC=Determinant Residual Variable

Table 4: J-Test for Non-Nested Models

Equation 1: Individual Effectiveness	Simmelian System	Simmelian System	Simmelian System	Krackhardtian System	Burtian System
Estimate Individual Effectiveness Simmelian System				.803† (.408)	
Estimate Individual Effectiveness Krackhardtian System	.132 (.611)		.114 (.616)		
Equation 2: Role Ambiguity					
Estimate Role Ambiguity Simmelian System					1.145*** (.205)
Estimate Role Ambiguity Burtian System	-1.019 (.940)	-.226 (.800)			

Standard errors in parenthesis
†)p<.10,*)p<.05,**)p<.01,***)p<.001
Null hypothesis : Competing system specification has no explanatory power.

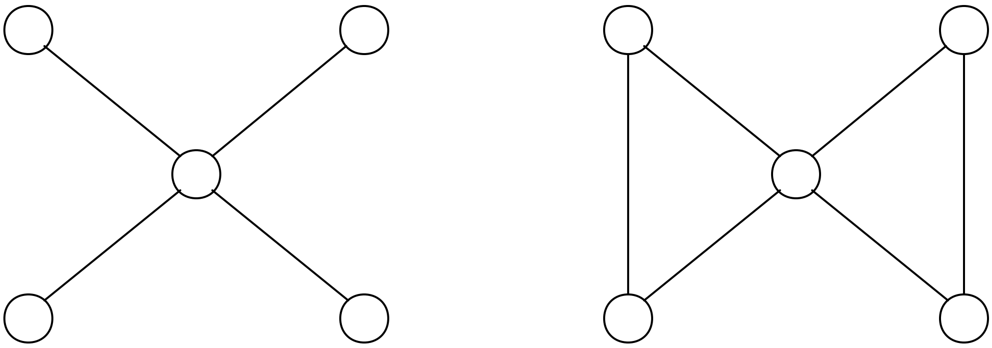

Figure 1: Broker and Simmelian Broker

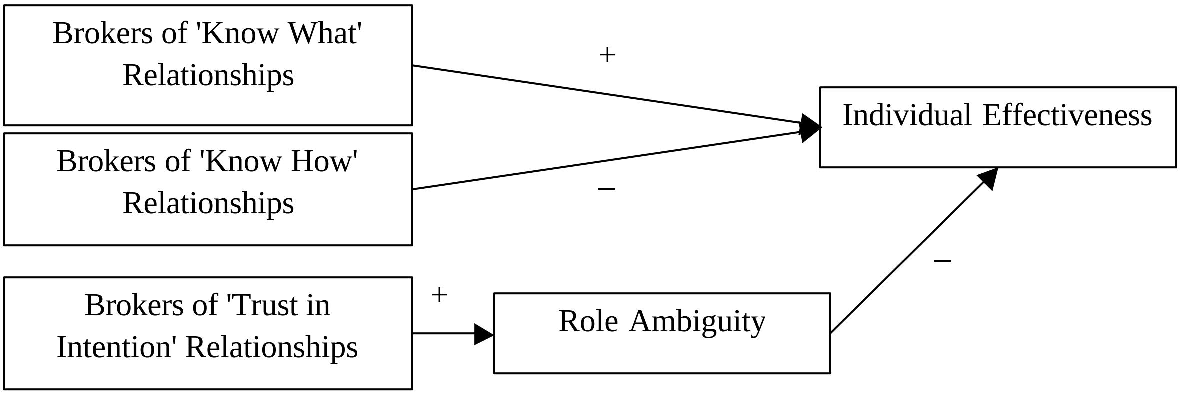

Figure 2: Theoretical Model

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