



**PHD IN MANAGEMENT
XXXIII° CYCLE**

THESIS

**WHAT MATTERS FOR IDEATION?
A CROSS-LEVEL INVESTIGATION OF
INDIVIDUAL, GROUP, AND NETWORK FACTORS**

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ABSTRACT

In this dissertation, I investigate different antecedents of group ideation performance, defined as the group ability to generate and develop ideas within an organizational context. Ideation is generally a multiperson-multitask affair that proceeds over time. Furthermore, it is conceptualized as the act of generating and handling new ideas by a single person or by groups or by whole organizational entities (Ford, 1996; Shalley, 1991). Considering ideation as the beginning phase of the whole innovation process, when ideas are generated and developed and focusing on intraorganizational group ideation performance, this research effort investigates the antecedents at different levels of group ideation ability. To date organizational literature has failed to reconcile the different levels involved in the process of idea generation, and managerial practice calls for a deeper understanding of the different factors affecting idea generation in groups. The literature on creativity in organizations has, for example, generated a significant understanding of the effect of ongoing group and organizational contexts on individual creativity (Amabile et al., 1996), but it is less concerned with action and interaction at the collective level, i.e. group level.

Previous research investigating groups in a variety of organizational setting have acknowledged that group performance is a function of composition, availability of resources and information, and rewards (Hackman, 1987, 2002). However, the lion's share of previous studies has been conducted in groups conducting relatively routine task and composed of relatively homogenous members McDonough (2000). Those findings need to be revised dealing with ideation groups, which are characterized for being fluid groups composed of members who worked together for accomplishing the specific task in which group members join the group and leave it at the end of the task (Edmondson and Nembhard, 2009).

The aim of this study is to investigate group ideation performance. Group ideation is defined as the ability of a group to collectively generate and develop ideas within an organizational context. A crosslevel-framework (Rousseau, 1985) is proposed to study the antecedents of ideation in groups. Offering a deep and longitudinal analysis

of group production of ideas this research contribute to the part of management literature involved in understanding how ideas are generated within organizations. This thesis aims at contributing to organization literature in the following respects: first, the thesis has examined the characteristics of different levels antecedents of group ideation performance; second, this thesis has extended previous findings to an ideation context and demonstrated that the impacts of antecedents depend also on the task the actors are facing; third, this thesis has elucidated two patterns of temporary network structure evolution.

Inspired by these insights, the overarching research question of this dissertation is: *What matters for ideation?* In answering this overarching research question, the dissertation is composed of three essays, each addressing a specific aspect of the general subject.

The first essay investigates the effect of *individual contributions* on group ideation performance. Extant research has drawn tight boundaries around the “*self*” as the privileged locus of inquiry (Taggar, 2002; Montuori and Purser 1996; Ford, 1996). Most creative individuals are, indeed, in demands by organizations that rely on their performance to gain the competitive edge. The impact of top talented professionals (stars) on group performance has been the object of a growing body of organizational research (Montuori and Purser 1996; Ford, 1996). Previous studies dealing with the effect of star presence on group performance rest solely on the positive assumptions of the stars’ central role as sources of intellectual capital and for their own knowledge endowment. Considering both the task contributions and the enhanced reputation that those individuals can confer to the group to which they belong, it is easy to understand the appeal that the intuition of “more is better” has had on the managerial practice, including a range of contexts like consulting firms, sport teams, and so on... More recently, researchers have begun to question these findings (Groysber et al., 2008). In contexts where people need to collaborate to some degree to perform interdependent tasks, a major concern is that stars may have trouble working together. Indeed, stars have aspirations and egos that often impede their willingness to share information, to cooperate and to perform interdependent tasks. When star players must interact

regularly with other top talents, their performance may not sum additively into an organizational setting (Pfeffer and Sutton, 2006). Extant literature has investigated the effect of stars on group performance pointing out mainly to their positive effect (Jenssen and Jorgensen, 2004). Thereby, received theory has failed to account for the potential contradiction regarding the effect of star ideator presence on group performance. This research disentangled the discussion on the effect of star ideator presence from the effect of grouping together top talented professionals.

We have thereby specifically gone into the tension between star ideator presence, associated with increased resources and reputation and grouping top talented professionals associated with coordination problems.

This reasoning leads to our first research question:

R.Q.1 What is the effect of star ideator presence on group ideation performance?

What is the effect of grouping top talented professionals on group ideation performance?

The second essay investigates the effect of *group composition* on group ideation performance. The use of groups enables the integration of expertise and information across the organizational silos created by functions, business units, and geographically distributed company locations. In large part, their success derives from their composition and ability to capitalize on it. Despite the potential of groups to enhance innovation and organizational performance, the realization of these potential benefits has been found to be far from straightforward. While some groups match, and even exceed expectations (Brown and Eisenhardt, 1995), others fail to fulfil the organizational mandate (AitSahlia et al., 1995). The lion's share of existing literature on these groups does not attend particularly to creative work, even though there arguably are clear differences what regards effects of group diversity between work where the main objective is to integrate already existing knowledge to efficiently achieve a defined outcome and work where the focus is on generating new ideas and knowledge, respectively. We argue that when group composition tends to change over time group

familiarity (Katz, 1982; Edmondson et al., 2001; Reagans et al., 2005) and group diversity (Van de Ven, 1986; Ancona and Caldwell, 1992; Nonaka, 1994; McDonough, 2000) affect group performance in generating and developing ideas. As suggested by other researchers, extant research has focused mainly on “intact groups” without accounting for the possibility of changing group composition over time (Edmondson and Nembhardt, 2009). Groups composed of members with different functional belonging can benefit from human and social capital existing within each single group member’s organizational department. *Affiliation diversity* would therefore affect group ideation performance through mechanisms such as increased access to new knowledge and information, facilitated interdepartmental exchanges, increased high-quality external communication and improved learning experiences (Ancona and Caldwell, 1992). *Group familiarity*, i.e. the degree to which group members have worked with one another in the past, increases the ability of group members to coordinate their activity effectively. Improvements in coordination could result from individuals working together, thereby learning who knows what and building mutual trust, in the end facilitating the coordination of their activities (Uzzi 1996; Edmondson, Bohmer & Pisano 2001; Edmondson et al. 2003; Reagans et al., 2005). While group familiarity allows for deep coordination mechanisms to be embedded within groups, a high level of group familiarity could constrain group ideation ability, resulting in mechanisms that hinder the creation and development of new ideas (Skilton and Dooley, 2001).

Inspired by this insight our second research question is:

*R.Q.2: What is the effect of affiliation diversity on group ideation performance?
What is the effect of group familiarity on group ideation performance?*

The third essay investigates the effect of *temporary network structure* on group ideation performance. It is acknowledged by the evidence that organizational contexts characterized by high rate of innovation, migrate towards more fluid, short-term flexible and network-based mechanisms governing work structure within organization (Piore and Sabel, 1984; Edmondson and Nembhard, 2008). Collaborative and exchange network ties facilitate tacit and explicit knowledge transfer and diffusion within

complex organizations (Hansen, 1999; Singh, 2005). Network theory offers a powerful concept, that of *network degree*, in order to capture focal actor's access to and control over resources. Because of their numerous connections to others, actors in central network positions have greater access to resources. Consequently, actors who occupy more central position have access to more information and resources that have the potential to positively influence innovation performance (Sparrowe et al., 2001; Tsai, 2001). On the other hand network theorists highlight the importance of another network position that of: structural holes. *Structural holes* are present in an actor's network of relationships when the focal actor (or "ego") is tied to others ("alters") who are not themselves connected (Burt, 1992). Actors who occupy that kind of network position are able to access different and thereby non-redundant sources of information and resources, novel communities, diverse experiences, unique resources, varying preferences and multiple thought worlds, in turn providing greater opportunities to generate good ideas and creativity (Burt, 2004). Trying to reconcile network theory with ideation literature the researcher is confronted with the problem of overcoming the potential contradictions with the mechanisms associated with those two network positions. While network centrality is associated with access to and control over redundant information and resources (Coleman, 1988), a network position rich in structural holes is on the other hand associated with benefits of accessing diversity and novelty in ideas by tapping into the capabilities of alters that are disconnected from each other (Burt, 1992). Network literature has thereby faced a tension between the mechanisms of network centrality, associated with enhanced access to resources and information and a network position rich in structural holes associated with access to diverse and novel ideas and knowledge. In this research we disentangle the discussion on network centrality and network position rich in structural holes, focusing on their complementary effect on group ideation performance.

Given the importance of those network positions in the ideation process a logically extended research question would investigate the effect of those two network positions on ideation performance.

This reasoning leads at our third research question.

R.Q.3 What is the effect of group centrality on group ideation performance?

What is the effect of holding a position rich in structural holes on group ideation performance?

Beyond the consensus that network structure provides various types of benefits, there is still little investigation on the structural mechanisms at the basis of network emergence. Without understanding the temporal sequencing behind the emergence of network structure, knowledge on network emergence and benefits remains incomplete. As network structures change, this could arguably affect concurrent network structure thus affecting outcomes. This temporal network sequencing describes variations in network structure over time (Powell et al., 2005). Past network structure offers actors a combination of experience, resources, knowledge access, that can provide opportunities and inducements but also constraints and barriers to the evolution of the structure (Stevenson and Greenberg, 2000). Network structure can emerge from the intersection of two complementary forces provided by past network structure and positions within the network. Positions that have proven to be efficient in the past are reproduced in the current network structure (*exploitation of past network structure*) (White, 1992; Zaheer and Soda, 2009). More precisely, experiences and knowledge that have proven to be efficient in the past in turn motivate and enable actors to recreate and reconfigure past network positions into future beneficial ones. Past network structure tends to reproduce itself through norms, rules, social pressures creating a kind of inertial forces that affect and constraint actors' behaviour (Fleming and Waguespack, 2007) (*constraint of past network structure*). Inertia and relational lock-in imply that repeated ties become stronger and more durable; time cements network ties. Overall, these arguments suggest that social structures tend to persist over time. This reasoning suggests a strong element of stability within network structure, implying that the current network structure is affected by past network structure. As our investigation comprises temporary network structure that is continually being created and dissolved over time, we could more clearly disentangle the discussion on the underlying processes of exploitation of past network structure and constraint of past network structure pointing

out to the mechanisms that accounts for the emergence of a temporary network structure. Inspired by this insights our fourth research question is:

R.Q.4 What is the effect of past network structure on current network structure?

Data on all ideas that have been created within a company over an extensive period of time have been collected. The company studied is a Swedish consumer goods company that has worked systematically with ideation since 1995, using an idea management system for collecting, handling and evaluating all ideas generated at the firm. Longitudinal data on groups, all their members, and their networks of relations have been gathered from 2000 to 2006 from the company database.

It is not our intention to claim that those three levels are the sole determining factors affecting the generation and development of ideas by groups. However, the importance of individual contributions, group demography and network structure has been lacking in existing literature on ideation process and this study aims at filling this gap.

First, we found that presence of a star is key for the ‘kick-off’ of the idea, his or her presence is fundamental for the human capital, and resources, competencies and skills, and reputation the star brings within the group.

Second, we distinguished between star presence within ideation group and the overall group composition in terms average ideation ability. The effect is positive, even for high levels of group ideation ability but it tends to grow up at a decreasing level due to frictions in team-working dynamics (coordination costs, conflicts, and so forth) that can make it difficult to take all from the members’ ideation capabilities. Contribution of group ideation ability on group ideation performance are positive but at a decreasing rate. Nonetheless, counterintuitive mechanisms emerge when top talented professionals are called to collaborate and coordinate their activities.

Third, diversity in terms of functional background seems to be a requisite for increasing group ideation performance. Cross-functionality provides the opportunity for integration of critical information, through processes such as increased access to new

valuable knowledge and information, higher-quality learning experience, increased inter-departmental resource transfer and sharing.

Related to the above, we found that group familiarity –i.e. the degree to which group members have worked with one another in the past- yield superior performance. Because of shared experience, individuals develop group human capital, group familiarity fosters learning and intragroup coordination. Finally, group familiarity is likely to increase communication intensity around the ideas. Findings show that group familiarity effect on group ideation performance presents an invertedly U-shaped effect. In line with the finding of Katz (1982) there is a curvilinear relationship between group familiarity and performance in which performance initially improves and then declines as group familiarity increases. We relate this findings to mechanisms of group closure: for instance, group members' decreased interaction with actors outside the group, increased intragroup communication on less task relevant issues, and more limited environment scanning.

Fourth, group network degree centrality affects negatively group ideation performance. The explanation for this result rests on the evidence that high group network centrality means that the focal group has many connections with other groups in the concurrent network structure. Groups with high network centrality suffer form being in a way constrained by the network structure (Uzzi, 1997). The high network cohesion resulting form their patterns of connections in a major inhibitor of ideation ability as it is embedded in a dense web of interconnected ties.

The results showed that the presence of structural holes affects positively group ideation performance. This evidence supports the proposed hypothesis and the positive effect found corroborate the network theory that stresses the privileged position of those bridging holes within the network as those actors maintain control benefits over resources that flow within the network structure (Burt, 1992; 2004). Moreover, the benefits of structural holes operate through mechanisms of brokerage, information asymmetries among disconnected alters (Fleming and Waguespack, 2007). In the context of the ideation network, aggregating information from several different alters

enable focal group to exploit its knowledge and resources endowment, thus nurturing idea creation and development.

Finally, our results reveal that network structure tends to reproduce over time and to maintain stability over time. Results show that past group centrality leads to current group centrality and past structural holes lead to the formation of structural holes in future networks, too. Thus, groups exploit their network position affecting group performance. Our explanation of opportunity exploitation and structural persistence are not necessarily in opposition to each other. Our overarching theoretical framework included both constraint and opportunities arising from structural persistence. We showed that actors exploit actively the opportunities related to structural characteristics of past network structure in enacting the processes that culminate in the creation of future networks and specifically in the achievement of superior network positions for themselves (Nohria, 1992). At the same time, by virtue of inertia and constraint, highly embedded structures from the past limit the focal actor's ability to transform past network positions into valuable current network structures.

Key Words: *Innovation, Ideation, Ideas, Group Composition, Star Ideators, Diversity, Familiarity, Intraorganizational Network, Temporary Network Structure*

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