

The tmt and the upper echelon perspective business essay

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Intense global competition combined with the current challenging global economic conditions requires companies to develop innovative strategies that allow them to sustain a competitive advantage on the market. It is a common saying that organizations that fail to innovate will fail to survive. Top managers, as the primary determiners of the organizational strategy, have a significant influence on the innovative performance of their firms. Through innovation, organizations gain new revenue streams by extending their portfolio with new products or services. Moreover, innovation can help reduce costs by, for example, developing new or more efficient operating procedures. As such, innovation represents a reoccurring organizational challenge that requires continuous strategic planning and evaluation. The need to engage in strategic renewal requires that firms constantly reinvent themselves to remain competitive, by developing attractive new product / market combinations, resulting in a constantly evolving portfolio mix (Porter, 1980). Strategic renewal is recognized by the literature as one of the main drivers for innovation. Within the literature dedicated to analyzing the effects and antecedents of firms' strategic choices on innovation, many researchers consider the extent of the input of resources in research and development (R&D) as a primary indicator for innovation (Kochhar & David, 1996). However, although the amount of resources invested in R&D occasionally predicts innovative success, the resource inputs and innovative outputs do not always correlate (Barbosa, 1985). Further research suggests that processes leading to innovation are affected by other factors as well, such as, organizational culture (Kunda, 1992; Sackmann, 1992), team dynamics (Ancona & Caldwell, 1992), and access to knowledge (Henderson &

Cockburn, 1996; Rosenkopf & Nerkar, 2001). Top Management Teams (TMTs), as the organizations primary decisions makers, have a significant impact on these factors. Consequently, firms following a path of strategic renewal increasingly realize that they need top managers with the attributes and skill-sets to function effectively in the complex international business environment (Herrmann & Datta, 2005). As a result, TMTs have become increasingly diverse, yet the implications of TMT diversity on the innovative performance of firms remain largely unclear. The majority of research examining the effect of TMT diversity on firm innovative success only considers its impact on the inputs of innovation, such as the level of financial investment (Veugelers, 1997) or the level of commitment to R&D (Castle & Banaszak-Holl, 1997; Green, 1995). This thesis aims to address this gap in the available literature by evaluating the impact of diversity in TMT attributes on the outputs of innovation processes rather than inputs. It examines how the breadth of the functional expertise of its CEO moderates the effect of TMT functional diversity on innovation. The focus in this thesis is on diversity in the TMT members' functional background, as it is often considered an important source and indicator of the expertise among executives (Bunderson & Sutcliffe, 2002). The functional background of top managers is the primary indicator to determine the diversity of knowledge and skillsets available within the TMT. Organizations with a functional diverse TMT are able to tap into an extensive set of cognitive resources, generated through a range of knowledge, skills, and expertise. Innovation is often achieved through an effort to recombine existing knowledge into new ideas. Possessing a broad range of cognitive resources within a TMT, stemming

from members' diverse functional backgrounds, is likely to have a positive effect on the innovative capability of a TMT. Moreover, the functional background of TMT members has consistently been proposed to have a significant influence on the strategic choices that executives make (Finkelstein, 1992; Michel & Hambrick, 1992; Song, 1982). Therefore, it is interesting to consider the implications of TMT functional diversity on the innovative performance of firms. Hambrick and Mason, (1984) were one of the first to establish the notion that organizations are a reflection of their leaders, they formalized this notion in the Upper Echelon (UE) Theory, which is often used to analyze the impact of leadership attributes on various organizational outcomes. In the stream of UE research, it is recognized that TMT functional background diversity may both benefit and hamper organizational performance (Certo, Lester, Dalton, & Dalton, 2006). On the positive side, functionally diverse teams have a larger pool of perspectives, skills, and non-overlapping knowledge at their disposal (Simons & Pelled, 1999), and tend to have non-redundant peer networks increasing access to unique information (Ancona & Caldwell, 1992) stimulating effective decision-making (Certo, et al., 2006). On the negative side, functional diversity can cause team fragmentation, communication problems and interpersonal conflicts which leads to ineffective functioning of TMTs (Hambrick, 1994; Hambrick & Mason, 1984). As a result the empirical evidence on the impact of TMT diversity on firm performance has often been inconsistent (Cannella, Park, & Lee, 2008; Certo, et al., 2006; Haleblian & Finkelstein, 1993). Hambrick (1994) argued that an organization can only benefit from the advantages stemming from TMT functional diversity when the TMT

overcomes team fragmentation and acts as a 'real' team. Further research points out that integrated teams have a higher capacity to deal with behavioral complexity and a higher ability to integrate diverging opinions into balanced strategic decisions (Carmeli & Halevi, 2009; Carmeli, Schaubroeck, & Tishler, 2011; Lubatkin, Simsek, Ling, & Veiga, 2006). A CEO is in a unique position to help facilitate further integration within TMTs. Their actions and behavior can help to reduce unproductive conflict and counter team fragmentation. Integrative TMTs are proposed to be more effective in the exchange, integration and application of the wide range of knowledge and expertise available within functional diverse TMTs (Carmeli, et al., 2011). As such, the behavior of the CEO can moderate the relationship between TMT diversity and firm innovative performance. Specifically, this thesis proposes that the breadth of a CEO's knowledge and expertise influences their capacity to facilitate behavioral integration within the TMT, stimulating the exchange of knowledge and ideas within diverse TMTs, ultimately leading to improved innovative performance. To examine this relationship, two CEO background characteristics will be compared; both can be considered proxies for a CEO's breadth of knowledge and expertise. These two potential moderators are the CEO's historic functional experiences, and the CEO's historic supervisory experiences. Both mentioned CEO background experiences are proposed to have a significant impact on the type of knowledge and expertise obtained by the CEO during their careers. Executives spend part of their careers within different functional departments, and during that period each executive is likely to develop a set of skills, knowledge and way of working, typical for each functional area.

Similarly, while working on a supervisory committee, executives are likely to develop a deeper understanding of the topics or areas on which the committee focuses. Moreover, the members of the committee are usually very experienced within these specific fields, providing a rich source of knowledge and expertise for the executive. As such, a CEO who has spent his entire career within a single functional department could still gain a broad set of knowledge and understanding of different functional areas by working on a wide variety of committees. As mentioned before, the breadth of the CEO's supervisory or functional background experiences is likely to influence their ability and efforts to integrate the variety of skills and knowledge available within a diverse TMT. This leads to the following primary research question:

What is the impact of TMT functional diversity on firm innovative performance, and to what extent is this relationship moderated by the breadth of a CEO's supervisory and functional experiences?

This research aims to add to the available R&D literature by using a broad sample across a variety of industries and firms, whereas most previous research has focused on a single industry. The remainder of this thesis is organized as follows. First, a theoretical background of innovation and upper echelon research will be given. This will be followed by the development of the hypothesis. The method and empirical context for analyzing the relationships will be explained. Finally the findings and future directions for research will be presented.

2. Theoretical Background.

2.1 The TMT and The Upper Echelon (UE) Perspective

Firms need to be able to adapt quickly to the constantly changing environmental conditions to maintain industry leadership positions. This organizational challenge requires a continuous effort and commitment to search for new domains and sources of knowledge. Consequently, the firm's decisions makers need to be able to identify innovative opportunities within the firm and external of the firm that could provide new sources and domains of knowledge or could lead to the integration of existing knowledge and technology into new products and services. The TMT members, as the firm's primary strategic decision-makers, have the ability to initiate or stimulate innovation by directing the strategic actions to facilitate it. Green (1995), for example, shows that TMT support for R&D, in both financing and advocacy is a primary determinant of whether R&D projects are terminated or completed (Green, 1995). Companies need top managers who possess the attributes and skill-sets to function effectively in the current challenging and complex international environment. The need for strategic renewal to remain a competitive position in the challenging global market requires that firms possess TMTs with the capabilities to develop innovative responses to changing environments. On this note, research started to consider how underlying psychological attributes of top managers, such as preferences, beliefs, cognitions and skill-sets effect firm performance. Pfeffer (1983) argues that organizational outcomes can be predicted through analysis of top managers demographic attributes, which are easier to determine and measure than psychological constructs (Finkelstein, 1988; Pfeffer, 1983).

Moreover, the objectivity and availability of demographic data is an often cited argument for using demographic characteristics over psychological constructs. Hambrick and Mason (1984) formalize this view in the UE model. The UE theory suggests that " managerial decisions are strongly influenced by behavioral aspects and characteristics of firms' upper echelons, and organizations thus become a reflection of their top managers" (Hambrick & Mason, 1984: 193). Psychological factors such as beliefs, knowledge, assumptions and values remain fundamental to the UE theory although these factors are commonly proxied by demographic attributes. Hambrick and Mason (1984) mainly argue that demographic attributes are for a large part responsible for shaping the values and beliefs of individual managers. These attributes can thus be seen as valid proxies for the cognitive functions of managers, influencing their decision-making process and strategic behavior. Examples of demographic attributes commonly used as proxies are; functional background (Datta & Rajagopalan, 1998), tenure (Hambrick, Geletkanycz, & Fredrickson, 1993), educational level (Wiersema & Bantel, 1992), age (Wiersema & Bantel, 1992), and international experience (Sambharya, 1996). The above demographic characteristics of TMT members are commonly used in studies and models that attempt to predict strategic choices and the resulting organizational performances (Hambrick & Mason, 1984). Among the studies on the firms, several investigate the effects of TMT diversity in demographic characteristics on organizational outcomes, such as the level of internationalization, the level of product diversification, type of market entry strategies, innovative performance and various other outcomes (Cannella, et al., 2008; M. A. Carpenter, Geletkanycz, & Sanders, 2004;

Finkelstein & Hambrick, 1996; Hambrick, et al., 1993; Hambrick & Mason, 1984; West & Anderson, 1996; Wiersema & Bantel, 1992). Bantel and Jackson (1989) find evidence of a significant association between innovation in banks and heterogeneity in educational and functional backgrounds of TMTs (Bantel & Jackson, 1989). The primary purpose of their study is to investigate the relationship between the composition of TMTs and innovation. In their hypothesis, they distinguish between the level of cognitive resources a team brings to the decision-making process (i. e. high versus low cognitive skills, knowledge and ability), and the diversity of views represented. Their results support the cognitive resources perspective, which posits that both resource level and diversity are important for innovation. Moreover, their findings do not support arguments stemming from the literature on the information processing perspective, which predicts that demographic diversity in TMTs interferes with communication processes and creates dysfunctional conflict. Finally, their findings further support the UE perspective, by showing that innovation is associated with the demographic characteristics of TMTs. More recently, Daellenbach, McCarthy, and Schoemaker (1999), conducted similar research in the semi-conductor and primary metals industries. Their study supports the perspective that TMTs with a greater proportion of technical backgrounds have a higher "commitment to innovation" (tend to increase R&D budgets to a higher degree). Several other studies present empirical evidence in support of significant relations between TMT diversity and various other strategic outcomes. For example, Wiersema and Bantel (1992) find significant relations between TMT diversity and the level of corporate strategic change,

using a sample of Fortune 500 companies. Their results support the theory that diversity in cognitive perspectives, as reflected by diversity in a TMTs demographic characteristics, facilitates change in corporate strategy (Wiersema & Bantel, 1992). Another study by Hambrick, Cho and Chen (1996), using a sample of actions and responses of 32 U. S. airlines over eight years provides evidence for a relationship between TMT diversity and the complexity of firms competitive moves. Their results indicate that TMTs with diverse functional backgrounds, education, and company tenure, exhibit a greater propensity for action. Moreover, the actions of firms with heterogeneous TMTs are generally of a more complex nature, and of a higher impact on the organization's performance, compared to actions generated by firms with homogenous TMTs (Hambrick, Cho, & Chen, 1996). The above studies provide some critical evidence on the systematic relationships between TMT diversity in demographic characteristics and decisions regarding firm innovative strategies and resulting outcomes. However, although many studies have been conducted that examine the effects of heterogeneity in groups in general (Jackson, 1992) and several studies zoom in on TMTs in particular (Hambrick, 1994), the presented conclusions are often contradictory. Beneficial effects of diversity are observed in some studies, the logic being that it enhances the breadth of perspective, cognitive resources, and overall problem-solving capacity of the group. While other studies find negative effects for TMT diversity, despite the wider cognitive resources, as it also causes problems that make the exchange of information difficult. For example, dissimilar group members may have different vocabularies, paradigms, and even objectives, which can

have a negative effect on innovation and performance (Hambrick, Cho and Chen, 1996). In the UE literature, diversity is often treated as a general construct hypothesized as having uniform effects regardless of the attributes to which it is empirically applied (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984). Jackson (1992: 368) argues that " when conducting empirical research it is important to decompose the construct to the level of single attributes and identify the most important ones". In the psychology literature on group diversity a clear distinction is made between different attribute types of diversity. The diversity dimensions within this stream have been classified into several categories (for reviews see (Jackson, Joshi, & Erhardt, 2003; Milliken & Martins, 1996; Pelled, 1996; Williams & O'Reilly, 1998). One clear categorical distinction is made between relationship-oriented diversity dimensions and task-oriented diversity dimensions. Relationship-oriented diversity includes demographics such as age, sex and nationality, which shape interpersonal relationships but usually do not have direct effects on performance. While task-oriented diversity reflects attributes related to the knowledge, skills and abilities needed in the workplace (such as function, tenure and education), and are thus more likely to have a direct effect on (innovative) performance (Jackson, et al., 2003). This could partially explain the findings by Williams and O'Reilly (1998) who, in their review of several studies linking demographic diversity to team processes, report that " increased diversity, especially in terms of age, tenure, and ethnicity, typically negatively effects social integration, communication and conflict." They also note, however, that several studies investigating the effects of educational and functional diversity report support for positive effects linking

these two specific types of diversity to improvements in team processes. Jackson and Joshi (2001) report similar findings, in that many studies find mixed results for most TMT diversity dimensions in relation to performance (Jackson & Joshi, 2001). However, Jackson and Joshi (2001) also observe the potential exception, in that the majority of studies included in their review on functional/occupational diversity, reported some types of performance improvements (Barsade, 2004; Bezrukova & Jehn, 2003; Mason A. Carpenter, 2002; Kochan, et al., 2003; Krishnan, Miller, & Judge, 1997; Pitcher & Smith, 2001). Additionally, they note that especially teams engaging in constant and intense debate gain the most from functional diversity (Simons & Pelled, 1999; Tjosvold, Hui, Ding, & Hu, 2002). The above reviews show that various diversity dimensions have differing effects on group and organizational outcomes (Milliken & Martins, 1996; Williams & O'Reilly, 1998). Although UE research generally considers TMT demographics as a whole, and CEOs as regular members of the TMT (Hambrick, 1994; Klimoski & Koles, 2001; Ling, Simsek, Lubatkin, & Veiga, 2008; Peterson, Smith, Martorana, & Owens, 2003; Simsek, Veiga, Lubatkin, & Dino, 2005). A growing body of literature has started to consider the role of the CEO separately. Several studies investigating the relationship between leadership and team processes, indicate that successful TMT performance depends on various team / leadership dynamics and interactions (Zaccaro & Klimoski, 2002). For example, Peterson et al. (2003) study the effects of CEO personality on TMT characteristics such as cohesion and power centralization, and the related consequences for organizational performance. Kisfalvi and Pitcher (2003) considered the impact of the CEO's character on TMT decision-making

processes by looking at their life history. More recently, Ling et al. (2008) examine the influence of CEO tendency towards transformational leadership on several TMT processes, such as behavioral integration, as a sources of corporate entrepreneurship. The above arguments and literature clearly indicate a need to consider the role of CEOs in a different light than that of regular TMT members (Buyl, Boone, Hendriks, & Matthyssens, 2011; Haleblan & Finkelstein, 1993; Jaw & Lin, 2009). Taking the above mentioned findings into account, the focus of this thesis will be on a single TMT diversity dimension, functional background. The functional background of TMT members is an important indicator for the diversity in perspectives, knowledge and expertise available to the TMT. Because TMTs are decision-making units, the variety of knowledge and cognitions that exists within a TMT is crucial to understanding the decisions made (Hambrick 1994). Equally important is the fact that functional diversity is one of the few diversity dimensions for which the results point relatively consistently towards having positive effects on performance indicators. As such, functional background is the most promising TMT diversity attribute to have a positive influence on firm innovative performance. The likelihood for functional diversity having a positive effect on innovative performance is further increased when the TMT is able to overcome the negative sides of (functional) diversity on social integration, communication and conflict. The CEO can play a decisive role facilitating the integration of the TMT through its unique position within a TMT. Consequently, this thesis will examine the relationship between TMT functional diversity and the effects on innovation in terms of R&D output, and how this effect is moderated by the breadth of the CEO's expertise.

3. Hypothesis Development

This thesis aims to investigate how TMT functional diversity is associated with firm innovative performance and how the breadth of expertise of CEOs moderates this impact. This thesis asserts that CEOs with experience in a variety of functional, as well as supervisory domains, also called generalists, are able to manage the potential of functional diverse TMTs more effectively compared to CEOs without such breadth in expertise, or so called specialists. To capture the breadth of CEOs expertise the explaining capacity of two moderators will be compared. The first captures the breadth in a CEOs expertise by examining the variety in a CEOs supervisory experience by looking at the committee types in which a CEOs participate(d). The second moderator considers the breadth of the CEOs personal functional background experiences.

3. 1. TMT Functional Diversity and Firm Innovative Performance

The main argument put forward by the literature on the positive influence of TMT functional diversity on firm innovative performance, rests on the idea that TMT members with different functional experiences will possess different types and levels of knowledge, as well as different perspectives and attitudes towards situations that require decisions of the TMT. Functional experience acts as a lens through which managers view problems, situations and ideas. The different viewpoints arising from TMT functional diversity stimulate in depth discussion and debate about the different ways to approach each situation, which in turn leads to more innovative and higher quality solutions (Bantel & Jackson, 1989; Hambrick, et al., 1996). When

diversity leads to disagreements concerning the firm's approach to a certain situation, TMT members become more aware of the up-and-down sides of each alternative solution, and are thus able to encompass more perspectives in their analyses of the situation, which further facilitates more innovative actions (Bantel & Jackson, 1989; Miller, Burke, & Glick, 1998). The TMT members have the power and authority to make strategic decisions, and are therefore in a position to develop strategies aimed at innovation. TMTs allocate resources which directly and indirectly enable the R&D teams to function (Daellenbach, McCarthy, & Schoenecker, 1999). They establish organizational structures and pursue alliances, which can enable collaboration and boundary spanning behavior among organizational subunits and across other organizations (Kreiner & Schultz, 1993; Stuart & Podolny, 1996)). Functional diverse teams that are effective in leveraging their combined knowledge and understanding of the workings within the different functional departments, are better positioned to determine where, and to what extent additional resources are required to fulfill the innovative objectives of the organization. For example, TMTs with a commitment to innovation can provide rewards and incentives for the creation and advocacy of innovations within organizational departments with a high commitment to the status quo (Hitt, Hoskisson, Ireland, & Harrison, 1991). Additionally, functional diverse teams have a better perception of the available knowledge and expertise within different organizational departments and can develop a strategy that stimulates the exchange of such knowledge between organizational departments. Such an approach will facilitate efforts to recombine the internally available knowledge and technology into new

ideas. The importance of integrating and exchanging knowledge is not limited to the TMT, as it is a crucial aspect of the innovative process throughout the organizational hierarchy. Effectively exchanging knowledge and allocating resources is a major influence on the innovative capability of firms. Using multiple sources of knowledge and technology is often regarded as critical for the generation of new ideas (Brock, 1975; Cohen & Levinthal, 1990; March & Simon, 1958). As such, one major task of TMTs pursuing strategic renewal strategies is to facilitate an efficient flow of knowledge and resources between the boundaries of organizational and technological domains in such a way that is likely to produce the highest innovative performance (Rosenkopf & Nerkar, 2001). Functional diverse TMTs have been found to scan their environments in more diverse lights, which consequently enable these teams to acquire and disseminate a wider range of information than TMT characterized by homogenous attributes (Hambrick, 1981, 1982). The extent to which people access and utilize diverse information is an important determinant of boundary spanning. Innovations accomplished through boundary spanning use prior knowledge available within a domain as well as knowledge developed in external domains (Doz & Hamel, 1998; Henderson & Cockburn, 1996; Rosenkopf & Nerkar, 2001). Through their wider scanning of the environment, functional diverse TMTs are more likely to recognize innovative opportunities, both internally and externally of the firm. Through boundary spanning, new purposes and applications for existing technology or ideas can be found that otherwise could become obsolete, and consequently has the potential to revive otherwise depleting revenue streams. Diverse TMTs are in a better position

to direct efforts to recombine prior ideas and knowledge stemming from different functional areas, which can then lead to the development of new products and services, or new product/market combinations (Podolny & Stuart, 1995; Rosenkopf & Nerkar, 2001). Rosenkopf and Nerkar (2001) find evidence that the extent to which prior ideas are developed through heterogeneous sources is an indication for the level of innovation that a new idea is likely to possess. Similarly, they find that new ideas, which build on a limited set of prior knowledge are often less innovative. Diverse TMTs that display the ability to effectively combine the knowledge, information and resources stemming from a diverse set of functional backgrounds are likely to value and stimulate the same ability and behavior within their organizations, ultimately leading to increased innovative performance. The multitude of perspectives present within functional diverse TMTs, are likely to make a wider variety of approaches and ideas open for discussion to TMT members. The openness of functional diverse TMTs to a wide variety of approaches and perspectives is likely to reflect on the organizations business culture. Therefore, functional diversity in TMTs is likely to generate a business culture in which it is accepted to attempt unconventional ideas and value out of the box thinking. Such an open business culture is likely to support innovative behavior and risk-taking in idea-generation leading to improved innovative performance (Wynett & Fogarty, 2002)The ideas for innovative new products or processes need to be advocated if they are to be developed into patentable products or processes. Patents reflect a firm's intention to commercialize a product idea (Hitt, et al., 1991). TMTs with high functional diversity have an internal network with deep allegiances across a

wider variety of functional areas compared to homogenous teams (Monge & Eisenberg, 1987). Therefore, they are more likely to " have a good perception of where the knowledge is and how to tap into it" (Bunderson, 2003). TMTs with high functional diversity tend to be more centrally located in the work flows of their teams and organizations and therefore more influential in decision making, and thus more effective in the promotion of innovative ideas and solutions (Bunderson, 2003; Finkelstein & Hambrick, 1996). Functional diverse TMTs can use deep allegiances and the extensive internal network to positively influence the innovation process by championing new ideas and products, leading to a higher likelihood that innovative ideas will eventually be commercialized. The above arguments lead to the following hypothesis:

Hypothesis 1: TMT Functional diversity positively influences a firm's innovative performance

3. 2 The Moderating Roles of CEO Functional and Supervisory Experience

Teams can only outperform the quality of individual decision makers to the extent that information is asymmetrically distributed among members (Brodbeck, Kerschreiter, Mojzisch, & Schulz-Hardt, 2007): Meaning that the group members' individual information sets and the group's combined information set have different decisional implications. In order to obtain the best informed decision, the team needs to discuss and debate all the information at hand. Such an approach is likely to produce synergy effects allowing them to reach a better informed decision compared to individuals, on the assumption that all critical information is indeed shared (Brodbeck, et

al., 2007; Stasser & Stewart, 1992). Hambrick (Hambrick, 1994, 2007), however argues that in many cases TMTs do not behave as "teams", but behave as a random group of individuals. Meaning that not every TMT meets on a regular basis to discuss problems, exchanges perspectives or solve problems. Without such teamwork, the synergy effects of possessing multiple perspectives, stemming from functional diversity within TMTs, will not be realized (Edmondson, Roberto, & Watkins, 2003). In this regard, a CEO can play a critical role by directing the TMT towards a path of further integration and effective teamwork, by leveraging their relatively powerful position within the TMT. The literature on social and behavioral integration in top management teams refers to the extent to which TMTs are unified in their pursuit of goals, information exchange, and collaboration amongst members (Knight, et al., 1999; Ling, et al., 2008; Magni, Proserpio, Hoegl, & Provera, 2009)). Such integrated TMTs are characterized by effective exchange of information and resources, and a shared decision making process (Hambrick, 1994). Indeed, the literature points towards a positive relationship between the level of social integration and product innovation intensity (Li & Zhang, 2002; Simsek, et al., 2005). Firms with integrated yet functional diverse TMTs, seem to be better equipped for pursuing innovation. Moreover, Hambrick (1998) argues that social integration also helps the implementation of organizational change, as TMT members are important advocates for change and TMTs who reach strategic decision through effective and balanced cooperation are more likely to form a unified front to challenge the status quo and stimulate innovative initiatives. As such, CEOs play a unique and perhaps decisive role by influencing the TMT - and

organizational - processes towards further integration, ultimately leading towards improved innovative performance (Arendt, Priem, & Ndofor, 2005; Jaw & Lin, 2009; Kisfalvi & Pitcher, 2003; Peterson, et al., 2003). This thesis proposes that the breadth of a CEO's functional and supervisory experience is likely to moderate the relationship between TMT functional diversity and innovative performance through several mechanisms that help to enhance the team processes. In this regard enhancing the teams functioning relates to the commonly cited team process advantages – broad consideration of alternatives, widespread information gathering, effective dispute resolution, and the development of strong commitment to the strategic decisions made (Cannella & Holcomb, 2005) (Pitcher & Smith, 2001). Firstly, CEOs with broad supervisory or functional experiences are more experienced in dealing with multiple perspectives, such experience is likely to make them more open minded towards different ideas, value discourse and debate which stimulates the generation of a wider variety of ideas and solutions within the TMT (Lawrence & Lorsch, 1967a, 1967b). Secondly, they are believed to have a higher integrative capability due to their shared/overlapping knowledge of different functional areas with various TMT members. This enables them to function as a bridge to overcome the negative effects stemming from diversity in functional expertise and helps to create an effectively functioning 'real' team (Buyl, et al., 2011). Third, they are likely to have an increased ability to estimate the value and importance of information or knowledge stemming from different functional areas, which gives them a better insight to orchestrate the general strategic decision making process. Moreover, the involvement of all TMT members in the decision making process is likely to

increase the commitment of the team to the decisions made and the innovative course of the firm. Dahlin et al. (2005) argue that in functionally diverse teams, in order to benefit from the synergy effects of the team's asymmetric functional information, team members should exchange, structure, and discuss the information at hand (Dahlin, Weingart, & Hinds, 2005). The exchange and integration of information within the team is vital for high-quality decision-making (Talke, Salomo, & Rost, 2010), which is more likely to happen in behaviorally integrated teams. TMT functional diversity cannot enhance effective decision making and innovative performance when executives rarely meet and instead behave as a random group of individuals. In this line, Hambrick (1994) argues that the advantages of TMT functional diversity can only be realized if the team overcomes fragmentation and develops effective team processes. Hambrick (1995) argues that effective CEO team leadership is guided by their ability to draw out fresh perspectives and effectively resolve the disputes during the aftermath of heated discussions among team members, to avoid group fragmentation and unproductive conflict (Hambrick, 1995). Diverse personal functional expertise and knowledge enable a CEO to build competence in bringing together a diverse set of knowledge domains (Lawrence & Lorsch, 1967a, 1967b). The breadth of a CEO's background expertise is therefore likely to influence the capability of a CEO to guide the integration processes within a TMT. For CEOs to stimulate integration within the TMT they need to be open minded towards multiple perspectives and understand its implications. It is important that they value discourse and debate which are a necessity for groups to overcome their differences and reach a mutually

acceptable solutions or strategy. A high variety in work experiences, such as within different functional or supervisory areas, is likely to have a positive effect on the open mindedness of CEOs, as they are more accustomed to working with different or new perspectives stemming from various functional backgrounds. CEOs with a broad type of background are more likely to be able to create a team environment that stimulates the generation of innovative ideas and strategies, and ultimately firm performance (Buyl, et al., 2011) . CEOs with a broad functional background experience are better at stimulating the exchange and integration of distributed functional information within the TMT. As such they can act as a bridge in bringing understanding between different TMT members and their respective functional areas. CEOs with broad functional expertise are likely to have overlapping functional knowledge with other TMT members. CEO's who spend their careers in a variety of functional domains are likely to have more superficial, less in-depth knowledge than executives who spend their entire careers within a single functional area. The common functional background experiences of generalist CEOs with other TMT members should be sufficient to enable the development of shared understandings and beliefs (Buyl, et al., 2011; Chattopadhyay, Glick, Miller, & Huber, 1999; De Brabander & Thiers, 1984). Moreover, it should allow them to overcome problems related to functional vocabularies, paradigms, and objectives. Bunderson (2003) finds that in centralized teams, team members with functional backgrounds overlap with their CEO, were more involved in the decision making process than those without. He build on the notion of Homburg, Workman and Krohmer (1999) who first reported support for the notion that members with

functional backgrounds that are similar to the backgrounds of their CEO have more influence over key decisions (Homburg, Workman Jr, & Krohmer, 1999). Bunderson examined the relationship between a team member's functional background and two forms of intra-team involvement: the members' centrality in a team's workflow and the involvement in the team's decision making process. Decision involvement refers to the extent to which a team member is included in the discussions that accompany key decisions, whereas workflow centrality refers to the extent to which a team member is involved in the day-to-day interactions which translate strategic decisions into action. He argued that members with a functional background that provides valued expertise and is similar to the functional backgrounds of other team members will be associated with both forms of involvement. More specifically, he argued that a TMT member with broad personal and strategically relevant functional experiences can be very useful to other team members as they work to coordinate across functions. The broad background and overlapping knowledge of such a TMT member allows that person to function as a bridge to link separate activities and objectives to team goals, or to help make sense of contextual events. As such, TMT members who have some overlapping functional knowledge with the CEO are more often involved in the decision making process, as the involvement of such a person increased the effectiveness of the communication in the TMT. Moreover such a member is believed to be better able to communicate with - and clarify the implications off different viewpoints to - the CEOs while accounting for the CEOs personal functional background. A functional generalist is expected to identify with several functional areas, making them

less likely to be influenced by bias and stereotypes towards certain functional backgrounds (Bunderson & Sutcliffe, 2002). Additionally, their shared understanding enables them to develop deeper personal connections with other TMT members, which will stimulate information sharing (Balkundi & Harrison, 2006). Strong ties between the CEO and TMT members will increase in-depth communication and information exchange (Arendt, et al., 2005; Buyl, et al., 2011). As such, a CEO with overlapping functional knowledge with other TMT members, will be able to retrieve knowledge available within the team faster, due to their knowledge of where certain information is likely to reside. Additionally, they possess a better understanding and ability to determine the value of the retrieved information originating from functional domains in which they have experience. Broad functional knowledge helps the CEO to facilitate synergy effects within TMTs, making optimum use of the diverse attributes and cognitions possessed by TMT members diverse functional backgrounds. Furthermore, overlapping knowledge and understanding increases the ability of the group to process complex information within short time frames, enhancing decision-making speed, quality and ultimately firm innovative performance (Rulke & Galaskiewicz, 2000). To summarize, CEOs with personal experience in a variety of functional areas, so called 'generalists', are able to draw out more of the potential of functional diverse TMTs compared to CEOs with expertise focused mainly on a single functional area, so called 'specialists'. The overlapping knowledge of CEO generalists improves their ability to integrate the TMT, and helps to overcome difficulties within team processes stemming from functional diversity, and the underlying personal differences in

perspectives, knowledge and objectives. An integrative TMT is more likely to be able to leverage the advantages of high functional diversity among members, and as such more likely to come up with innovative solutions. To capture the breadth of a CEO's expertise, the explaining capacity of two moderators will be compared. The first captures the breadth in a CEO's expertise by looking at the variety in their supervisory experience, through the committee types in which CEOs participated. The second moderator that will be considered is the diversity in the CEOs historic functional experiences. Since both variety functional and supervisory positions add to the knowledge of a CEO within different knowledge domains, both are considered as indicators for the breadth of CEO knowledge. This thesis aims to determine which of the two moderators has the largest explaining capacity, and which is the most effective in moderating the relationship.

H2a: The positive relationship between TMT functional diversity and firm innovative performance is moderated by the functional background of the CEO. Specifically, the relationship between TMT functional diversity and firm performance is stronger when the CEO has diverse executive functional experiences.

H2b: The positive relationship between TMT functional diversity and firm innovative performance is moderated by the functional background of the CEO. Specifically, the relationship between TMT functional diversity and firm performance is stronger when the CEO has diverse supervisory experiences.

4. Methodology

4.1 Data and Sample

The study has a longitudinal research design, spanning from 2000 to 2007.

The coverage of firms and their respective managers was very limited prior to 2000 in the BoardEx database. Thus, it was decided to omit data prior to the year 2000, to ensure that the final sample included an adequate amount of managers per organization to develop significant results. The criteria on which the firms were selected in order to be added to the sample were based on the size of sales and manufacturing within the European Union in 2007.

Another characteristic is that most of the firms have their headquarters within the EU. To ensure generalizability of the findings, a selection is made of a variety of industries rather than focusing on one single industry. The sample for this study consists of the data gathered on more than 4500 senior executives employed by 165 international firms. Data is collected for each firm and for each TMT member. The functional background of TMT members

has been collected using the BoardEx global leadership database. BoardEx provides extensive and in-depth information into how individuals within the market are connected. Top Management Team is defined on the basis of previous studies as everyone who has the title above the rank of Vice President (e. g. Chairman, Vice Chairman, Chief Executive Officer, President, Chief Operating Officer, Chief Financial Officer, Executive Vice President, and Senior Vice President) or has a board directorship, such as President, Chairman. This operational definition is consistent with prior studies of top management teams (M. A. Carpenter, et al., 2004; Chaganti & Sambharya, 1987; Michel & Hambrick, 1992). For each focal firm in the sample we tried to identify between 6 and 20 senior executives with the rank of Vice President or higher have been included. Additional data is collected for 370 CEOs of the respective companies; the information includes data on their historic functional experiences, within the same 8 functional groups Sales & Marketing, Operations, Human Resources, Finance & Administration, Research & Development (R&D), Legal and Others, as used for the TMT members' functional background. Furthermore, data is collected for their supervisory experiences using the committee roles and their respective 49 category descriptions as given in the BoardEx database.

4. 2 Operationalization of Variables

Dependent variable: firm innovative performance.

There are several common measure that are used to determine a firm's innovative performance, like R&D inputs, patent citations, patent counts, number of new product announcements and survey-based measurements of innovative performance (Hagedoorn & Cloudt, 2003) . Within the <https://assignbuster.com/the-tmt-and-the-upper-echelon-perspective-business-essay/>

management and innovation studies it is often debated which measurement is most effective in capturing firm innovative performance. This debate is addressed by Hagedoorn and Cloudt (2001) in their review of four indicators for innovative performance - R&D expenditure, patent counts, patent citations, new product announcements - they report no significant statistical differences between the effectiveness of the indicators, meaning that any of the examined indicators is effective in capturing the level of innovative performance in a broad sense. However, variations also exist within the indicators mentioned above. For example, there are several different and common patent based metrics that are used to determine firm innovative performance, some of which require extensive investigation of each patent, such as ranking the level of innovation for each separate patent compared to industry norms. Or to determine the level and effect of boundary spanning by looking at the different technologies used within each separate patent and resulting level of patent citation (Rosenkopf & Nerkar, 2001) . This study uses the total number of annual patents as a measure for firm innovative performance. Patent count is an often used and available indicator of innovative output (Hitt, et al., 1991). The data on the number of annual patent applications for each company is gathered through information provided by the European Patent Office (EPO). The patent data used in this research has been collected in prior research by Belderbos et al. (2011) for all included organizations in the TMT & CEO data sets, and for the period of 2000 until 2007 (Belderbos, Jacob, & Lokshin, 2011). Independent Variable: TMT Functional Diversity is measured for each individual on the TMT using 8 groups of functional backgrounds, namely; Sales & Marketing, Operations,

Human Resources, Finance & Administration, Research & Development (R&D), Legal and finally Others (consisting of the various background functions that do not fall under the previous categories). This division of functional categories is in line with previous literature on functional diversity (Cannella, et al., 2008). Functional background is a categorical variable and as such team level measures of functional diversity are developed by using the Blau Index (BI) (Blau, 1977). The Blau index is commonly used in TMT research to be able to quantify the diversity of a group. Where P is the share of TMT members with attribute K of functional backgrounds in the K th team. $P(k)$ is the share of different attributes for each Top Management Team k . A higher value of BI, indicates a higher diversity of the team. If all members have the same functional background the index for diversity equals 0, when all members have different functional backgrounds the outcome approaches 1.

1. Moderating variable: CEO Functional Experience The diversity within a CEO's functional experience is measured using the same 8 groups of functional backgrounds, namely; Sales & Marketing, Operations, Human Resources, Finance & Administration, Research & Development (R&D), Legal, and Others. A measure of the breadth in a CEO's personal functional experience is developed using a simple count variable of the number of functional departments an executive has worked in.

Moderating variable: CEO Supervisory Experience is measured using 49 categories to describe the different committee types and functions as prescribed by the BoardEx database for each executive participating within a committee, the categories are shown in chapter 7 of this thesis. The measure of supervisory

background diversity is a count variable of the number of different committee appointments of each executive.

Control Variables

A number of firm-level controls are included that could account for the increase in innovative performance of the TMT, including TMT diversity in nationality, TMT diversity in international experience, TMT diversity in educational achievement, TMT tenure diversity, TMT average age, TMT size, CEO Tenure, consolidated R&D expenditures in year t-1 (in logarithms) and finally time dummies. TMT diversity in nationality; Blau Index composed of the different nationalities in a team. A person has a foreign nationality if the executive's country of origin differs from the firm's home country of the firm where the executive is employed. The nationality of the executives were gathered using the BoardEx Database. As such, we followed BoardEx definitions and available data in the BoardEx database and no multiple nationalities were recorded. For each TMT a diversity score is calculated by using the Blau Index. Previous studies show that diversity of nationality in the TMT to impacts firm performance and innovation (Bantel & Jackson, 1989; Hambrick, Davidson, Snell, & Snow, 1998; Nielsen & Nielsen, 2011, 2012). TMT diversity in international experience Using the BoardEx information on recent and distant international experiences per team member, the Blau Index is used to measure the TMT diversity with regard to international experiences. Previous studies show that international experience effects firm performance (Daellenbach, et al., 1999) TMT diversity in educational achievement considers the diversity of TMT members with regard to their highest academic achievements. Educational level is related

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to the relevant cognitive skills, analytical capability, and level of knowledge of TMT members. A higher level of TMT diversity in educational achievements is shown to influence innovation and team performance (Bell, Villado, Lukasik, Belau, & Briggs, 2011). The measure of TMT diversity in education is composed using the Blau Index. The TMT tenure diversity, tenure has been found to influence the innovative commitment of executives. Longer tenured executives have been found to make fewer organizational changes and have a stronger commitment to the status quo (Finkelstein & Hambrick, 1990; Hambrick & Fukutomi, 1991). The coefficient of variation will be used to measure the heterogeneity level of tenure within the TMT. The coefficient of variation is calculated as the standard deviation divided by the mean. Wherein the standard deviation represent the standard deviation of the executives tenure within TMT and the mean represents the mean of executive' job tenure of the members within TMT. The higher the outcome the higher the TMT diversity. TMT average age. Top executives at a higher age have had a longer possibility to gather more diverse knowledge and experiences, including of other functional areas throughout their generally longer careers and tenure. The TMT average age is calculated by the mean age per TMT. TMT size is measured as a count of the total number of executives on the TMT (Lee & Park, 2008). The size of the TMT can influence the range of skills and resources available to the TMT, and as such is likely to influence the innovative performance of the firm. The TMT size is measured by the total number of persons within a team. CEO Tenure, Longer tenured executives have been found to make fewer organizational changes and have a stronger commitment to the status quo. This is also likely to

influence their commitment towards innovations, and as such the innovative performance of the firm (Bantel & Jackson, 1989; Barker & Mueller, 2002; Hambrick, et al., 1993; Musteen, Barker Iii, & Baeten, 2006; Wiersema & Bantel, 1992). Consolidated R&D expenditures in year t-1 (in logarithms) this measure has been included to account for variations in inputs into the R&D process. R&D inputs have often considered the primary indicator to impact the innovative performance of the firm. There is a significant positive effect of R&D investment on patenting noticeable within the first year. As such we control for the effects of R&D expenditures (logarithm) on the next year's patenting (Gurmu & Fidel, 2008; Hall, Griliches, & Hausman, 1986; Tsai & Wang, 2008) Lagged patent to R&D ratio. This is an indicator of the firm-specific propensity to patent. Year controls. All four models include six time-dummies to control for time-specific effects.

4. 2 Methods

The empirical model relates TMT characteristics functional diversity to number of innovative output in patent applications and how this relationship is moderated by CEO supervisory and functional experience. The dependent variable is a non-negative integer count variable, patent applications. In case of over-dispersion the negative binomial model is the preferred model for analysis over other count models like the Poisson or zero-inflation models. Negative binomial regression models do not assume an equal mean and variance like the Poisson model does, and includes an extra parameter to correct for over-dispersion in the data (Gourieroux, Monfort, & Trognon, 1984; Hausman, Hall, & Griliches, 1984). This thesis uses the negative binomial regression model with fixed effects. As the team-level and time-

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specific effects are of primary interest, each of the team effects is modeled individually to take fixed effects into account. The log-likelihood values are used to calculate the Wald χ^2 , to control that at least one of the predictors' regression coefficient is not equal to zero in the model.