

SEBASTIAAN VAN DOORN

Managing Entrepreneurial Orientation



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Doctoral Committee

Promoters: **Prof.dr. J.J.P. Jansen**
 Prof.dr. F.A.J. van den Bosch
 Prof.dr. H.W. Volberda

Other members: **Prof.dr. J. Covin**
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To my daughter, Nina

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CHAPTER 1: INTRODUCTION

Entrepreneurial orientation has become one of the major research areas in corporate entrepreneurship over the past 30 years (Miller, 1983; Rauch, Wiklund, Lumpkin and Frese, 2009). Most research has been focused on the relation between entrepreneurial orientation and performance, investigating a wide array of contextual conditions that enable entrepreneurial orientation to add to performance (Lumpkin and Dess, 1996). Recently the Lumpkin and Dess (1996) paper has been recognized as one of the most influential studies in entrepreneurship research of the past decades and has been selected as one of the foundational papers in entrepreneurship research at the Annual Entrepreneurship Research Exemplars Conference. The link between entrepreneurial orientation and firm performance has been extensively researched in the past few years (e.g. Lumpkin and Dess, 2001; Covin, Green and Slevin, 2006; Rauch et al. 2009). Most studies find that entrepreneurial orientation enhances firm performance, but highlight the importance of considering boundary conditions. For example, previous research has assessed the moderating role of firm resources (Wiklund and Shepherd, 2003), firm culture (Burgelman, 1984), firm structure (Covin and Slevin, 1990; Green, Covin and Slevin, 2008), social capital (Stam and Elfring, 2008) as well as environmental attributes (Covin and Slevin 1989; Lumpkin and Dess, 2001; Wiklund and Shepherd, 2005; Zahra and Covin, 1995). In addition, previous studies have assessed the mediating role of learning orientations (Wang, 2008), strategic decision making (Moreno and Casillas, 2008), information utilization (Keh, Nguyen and Ng, 2007) and self efficacy (Zhao, Seibert and Hills, 2005).

Considering the wide array of research regarding potential boundary conditions, it is surprising that little attention has been paid to the role of managerial attributes. Upper echelon theory suggests senior teams to play a pivotal role in determining

organizational outcomes, strategic choices and performance levels (Hambrick and Mason, 1984). By developing a conceptual framework on senior team attributes, this dissertation provides novel insights into specific ways how senior executives may increase the impact of entrepreneurial orientation on firm performance. For instance, senior teams are instrumental in establishing a coherent corporate strategy that allows for potential synergies to emerge between entrepreneurial initiatives and ongoing business (Hambrick, 1994, Thornhill and Amit, 2000). In addition, senior teams may establish a common understanding with regard to the importance of entrepreneurial orientation to firm survival, thereby aligning goals across organizational functions (Baum, Locke and Kirkpatrick, 1998; Amason, Shrader and Thompson, 2006).

In addition to the roles of senior managers, previous research suggests seedlings of entrepreneurial efforts to be primarily located at the middle management level (Floyd & Wooldridge, 1997; Hornsby, Kuratko, Shepherd, & Bott, 2008). Middle managers are deemed to have considerable responsibilities while still being fully embedded in operational processes. Through their detailed case-specific knowledge and expertise they are pre-eminently equipped to seek out, select and pursue viable entrepreneurial opportunities within their respective units, leading to increased performance. Adopting a different level of analysis, investigating the entrepreneurial orientation of middle managers and the entrepreneurial orientation they exert on their designated unit offers the right detail granularity for a rich understanding of their tasks in entrepreneurial processes.

Hence, our first contribution lies in the assessment of managerial involvement in entrepreneurial orientation. We find that managers have an important role in establishing an entrepreneurial orientation, but are equally important in translating the resulting entrepreneurial orientation into increased performance. Realizing the inherent

value represented by entrepreneurial orientation may be one of the most challenging tasks facing managers in the current business environment. Given the increased level of complexity and dynamism, the entrepreneurial orientation comprises essential elements for keeping up with environmental developments by engaging in risky, proactive and/or innovative activities that may represent high yield for future business avenues. However, establishing entrepreneurial orientation and providing an accommodating context for realizing its inherent value remains challenging and should be adequately managed.

Our second contribution is comprised by the assessment of the impact of managers at different hierarchical levels in the firm. In our first study, we assess the impact of the senior team on establishing the entrepreneurial orientation of the firm. The second study investigates how senior teams may enhance the value creating potential of the entrepreneurial orientation of the firm. In our third study, we adopt a different perspective and focus on the entrepreneurial orientation of middle managers and the subsequent performance of their designated unit. Considering that most studies have focused on entrepreneurial orientation at firm level, the examination of entrepreneurial orientation at the level of middle managers provides a new and promising avenue for future research. Moreover, it provides evidence that entrepreneurial orientation as well as the enabling context for realizing the value of entrepreneurial orientation may fluctuate across different organizational actors. Researching entrepreneurial orientation at the level of middle managers therefore aids in enhancing its theoretical and conceptual foundation and offers the right detail granularity for recognizing the differences across organizational dimensions.

Third, following previous research (Lumpkin and Dess, 1996) we acknowledge the context specificity of entrepreneurial orientation and consider a well defined set of

potential moderators and mediators that may aid in managing entrepreneurial orientation. Whereas the direct relationship between entrepreneurial orientation and performance is consistently positive, firms and managers are able to considerably influence the value creating potential of entrepreneurial orientation by providing the appropriate context. In this study we find that the interrelation between entrepreneurial orientation and performance is only fully appreciated by recognizing the enabling impact of e.g. senior team heterogeneity, senior team shared vision, strong ties of middle managers as well as their hierarchical position. The importance of context provides managers with the necessary understanding regarding the instruments and conditions that may allow them to establish and realize the value of entrepreneurial orientation.

Fourth, this study investigates the antecedents of entrepreneurial orientation which is an under-researched avenue in entrepreneurial orientation literature. Considering the wide array of studies on the relationship between entrepreneurial orientation and firm performance (Rauch et al. 2009), it is surprising to see that previous research has made few attempts to unravel what drives entrepreneurial orientation itself. What inspires top managers to develop, accommodate and sustain an entrepreneurial orientation? Some initial studies that have been undertaken in an effort to map antecedents of entrepreneurial orientation have a primary emphasis on trait characteristics of senior managers (Lumpkin and Erdogan, 2004; Cools and Van den Broeck; 2007). And whereas this is an interesting perspective, extending the focus from individual traits to behavioral constructs, such as knowledge acquisition and decision making comprehensiveness may provide additional insight into how firms may establish an entrepreneurial orientation.

Taken together, this dissertation provides some important additions to the expanding body of research on entrepreneurial orientation. The following 3 chapters

provide evidence on how organizations can manage their entrepreneurial orientation in a beneficial manner. The studies are based on original data, i.e. a large scale (10.000 firms) cross sectional survey and a focused study at a Global firm operating at the intersection of hardware, software and IT consulting. Table 1 depicted below presents an overview of the studies.

TABLE 1

Summary of studies

	Independent Variable	Moderator Variables	Mediator Variables	Dependent Variables	Theoretical lenses	Level of Analysis
Study 1	Internal Knowledge acquisition External Knowledge acquisition		Decision Making Comprehensiveness	Entrepreneurial Orientation	Upper Echelon theory Knowledge based view of the firm	Senior team level Firm level
Study 2	Entrepreneurial Orientation	Senior team Heterogeneity Senior team Shared Vision Environmental Dynamism		Firm Performance	Upper Echelon Theory Attention Based View	Senior team level Firm level Environmental level
Study 3	Entrepreneurial Orientation	Managerial position	Number of Strong network ties	Middle manager performance	Social network theory	Middle management level Unit level

CHAPTER 2: Antecedents of entrepreneurial orientation; The impact of senior team knowledge acquisition and decision making comprehensiveness

ABSTRACT

This study develops and tests a model for the explanation of a firms' entrepreneurial orientation. To this end, we examine the joint impact of senior team knowledge acquisition and decision making comprehensiveness on entrepreneurial orientation and posit that knowledge acquisition of senior teams provides an important foundation for entrepreneurial orientation. However, knowledge acquisition alone may not be sufficient for enhancing entrepreneurial orientation. We contend that senior team decision making comprehensiveness mediates the relationship between knowledge acquisition and entrepreneurial orientation as it reduces the level of uncertainty and ambiguity surrounding newly acquired knowledge, alleviating restrictions for enhancing the entrepreneurial orientation of the firm. We hypothesize that decision making comprehensiveness is especially important when senior teams acquire both a high degree of internal and external knowledge. Results however show that although decision comprehensiveness mediates the relation between the separate notions of internal and external knowledge acquisition and entrepreneurial orientation, the combination of both types of knowledge fails to add to comprehensive decision making processes.

Key words: entrepreneurial orientation, senior teams, knowledge acquisition, decision making comprehensiveness.

INTRODUCTION

The emergence of entrepreneurial orientation has enriched literature on corporate entrepreneurship and venturing (Lumpkin and Dess, 1996; Lyon Lumpkin and Dess, 2000; Covin, Green and Slevin 2006). Originally designed by Miller (1983) and conceptualized as a strategic posture scale of top managers by Covin and Slevin (1989) it has been widely researched in various settings. Typically, entrepreneurial orientation is conceptualized as the disposition towards innovative, pro-active and risky ventures. Considering the wide array of studies on the relationship between entrepreneurial orientation and firm performance (Rauch et al. 2009), it is surprising to see that previous research has made few attempts to unravel what drives entrepreneurial orientation itself. What inspires top managers to develop, accommodate and sustain an entrepreneurial orientation?

Although research exists pertaining to the drivers of corporate entrepreneurship (Zahra, Jennings and Kuratko, 1999; Yli-Renko, Autio and Sapienza, 2001; Zahra, Filatotchev and Wright, 2009), the antecedents of entrepreneurial orientation have received little attention. This may be partly explained by the behavioral aspects inherent to the concept of entrepreneurial orientation. Research on corporate entrepreneurship is typically concerned with outcome measures such as venturing, new product development and innovation (e.g. Zahra, 1991; Yli-Renko, Autio and Sapienza, 2001; Burgers, van den Bosch and Volberda, 2007). These concepts are tangible and refer to the content of entrepreneurial decisions. In contrast, entrepreneurial orientation represents a mindset or disposition towards entrepreneurship at the managerial level, determining how entrepreneurial action is undertaken (Lumpkin and Dess, 1996). It embodies how preferences for proactive, risky and innovative behavior of senior teams

may contribute to the realization of the entrepreneurial potential of firms. Recently, interest in the antecedents of entrepreneurial orientation is mounting, with an emphasis on trait characteristics of senior managers (Lumpkin and Erdogan, 2004; Cools and Van den Broeck; 2007).

Raising awareness regarding the antecedents of entrepreneurial orientation is important for firms seeking to optimize their entrepreneurial potential. In this paper we contribute to the understanding of antecedents of entrepreneurial orientation by investigating knowledge acquisition and decision making comprehensiveness. Firms and senior teams in particular are knowledge-processing units that acquire, interpret, and act upon knowledge (Atuahene-Gima and Li, 2004; Heavey, Simsek, Roche and Kelly, 2009). We therefore maintain that entrepreneurial orientation requires in depth as well as a broad based understanding of the opportunities for future entrepreneurial initiatives.

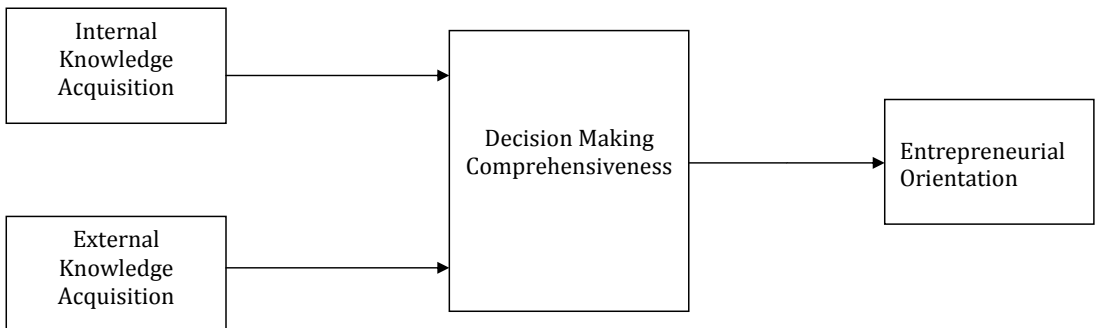
Conceptualizing knowledge acquisition at the senior team level, we view knowledge acquisition as referring to the collection of new insights through the acquisition of internal and external knowledge (Katila & Ahuja, 2002). By investigating internal and external knowledge acquisition by senior teams we aim to shed light on the relevance of newly acquired knowledge for enhancing entrepreneurial orientation, which forms the basis of subsequent entrepreneurial action. However, in order to build understanding with regard to the necessity and motivation for entrepreneurial orientation as well as content and context of entrepreneurial opportunities, acquired knowledge needs to be adequately processed (Heavey et al. 2009). Thus in addition, this study contributes to existing literature by contending that senior teams need to be comprehensive in their decision making in order to integrate and interpret newly acquired knowledge before it may add to the entrepreneurial orientation. The uncertain nature of new corporate ventures requires the input of a wide range of specialized

knowledge to reduce the level of ambiguity arising from entrepreneurial initiatives (Daft and Lengel, 1986). Knowledge pertaining to new corporate ventures often remains sticky, it is difficult to integrate and recombine in new settings by senior teams (von Hippel, 1994). Comprehensive decision making practices, such as the ability to assess multiple criteria and scenarios and synthesize strategic decisions, reduces ambiguity and allows senior teams to depart from existing frameworks and activities and enhance their entrepreneurial orientation (Heavey *et al.*, 2009).

Our conceptual model, presented in Figure 1, depicts the hypothesized relationships. Following the literature review and hypothesis development, we will present our empirical findings using lagged survey data (2008-2009) of 221 organizations operating in various industries in the Netherlands. Finally, we conclude with a discussion of our results, potential implications and suggestions for future research.

FIGURE 1

Conceptual Model



LITERATURE REVIEW

Entrepreneurial orientation has been conceptualized as the extent to which organizations are innovative, proactive, as well as risk takers (Miller, 1983). *Innovativeness* refers to the inclination to pursue new products and services (Zahra and Covin, 1995; Lumpkin and Dess, 2001), and allows firms to build new competencies (Jansen, Van den Bosch and Volberda, 2006). *Proactiveness* entails the tendency to take the initiative and achieve a first mover advantage (Covin, Green and Slevin, 2006). *Risk taking* refers to the propensity to invest in ventures with an uncertain outcome, as well as to operate in a leveraged manner (Lumpkin and Dess, 1996). It enables firms to deal with the uncertainties associated with entrepreneurial activities. Prior studies have shown first mover advantages accruing from entrepreneurial orientation to enable firms to develop specific competencies and assets, ensuring a competitive advantage with respect to competitors (Dierickx and Cool, 1989).

The forward looking notion of entrepreneurial orientation requires senior teams to operate at the edge of their competences. They cannot rely on the standards of the past but need to develop a compelling vision of the future state of the firm (Kanter, 1983). The importance of knowledge as a driver of entrepreneurial behavior has been widely recognized in strategic and entrepreneurship literature (Burgelman, 1983; Zahra, 1996). Knowledge is viewed as an enabling resource, providing seedlings for entrepreneurial behavior (Autio, Sapienza and Almeida, 2000; Yli-Renko, Autio and Tontti, 2002). Intensive knowledge acquisition, both within and outside firm boundaries, provides senior teams with the necessary foundation that enables them to consider embarking on risky, proactive or innovative avenues (Barringer and Bleudorn, 1999). Knowledge acquisition alone however remains a rather unstructured endeavor as

acquired knowledge needs to be adequately processed. Senior teams need to be comprehensive by interpreting and integrating the new, and often contradictory information they are presented with, before they can reach their potential in terms of enhancing the entrepreneurial orientation of the firm. Decision making comprehensiveness focuses on the extensiveness with which a firm's decision-makers systematically consider knowledge from the internal and external environment in making and integrating strategic decisions in the face of uncertainty (Heavey *et al.*, 2009: 1289). In doing so comprehensiveness provides for the necessary synthesis of acquired knowledge, reduces causal ambiguity, and alleviates tensions related to the uncertain nature of entrepreneurial behavior (Simons, Pelled and Smith, 1999). We therefore posit comprehensiveness of decision making to act as a mediator between senior team knowledge acquisition and entrepreneurial orientation.

Knowledge acquisition and entrepreneurial orientation. The collection of new insights generated by knowledge acquisition may provide a solid foundation for enhancing the entrepreneurial orientation of the firm. Together internal and external knowledge provides senior teams with the content necessary for exploring novel entrepreneurial initiatives.

Internal Knowledge. Internal knowledge is typically sought from other managers and acts as a conduit for insights that are generated within organizational boundaries and are 'of the firm' (Spender, 1996). It is usually highly conditioned by organizational memory, and thus more likely to be characterized by informational elements in line with the dominant 'theory in use' (Agyris, 1976). This knowledge is important because it fosters reliability, predictability, and a deeper understanding of local concepts that can boost the ability to identify valuable informational elements within them, to develop

connections among them, and to combine them in many different and significant ways that are not apparent to less experienced users of those concepts (Katila & Ahuja, 2002). Closer scrutiny of internal knowledge reveals knowledge gaps and highlights path dependencies (Menon & Pfeffer, 2003), demarcating the need for change within the organization and compelling senior teams to develop an entrepreneurial mindset. It enables senior teams to initiate connections between distinct and seemingly unconnected strands of knowledge that, once synthesized, may provide fertile ground for new entrepreneurial initiatives (Zahra, Nielsen and Bogner, 1999).

The combination of timely and proactive development of new innovative products and services with an acceptable risk profile requires senior teams to have in depth understanding regarding the existing as well as non-existing competences of the firm (Danneels, 2002). As knowledge acquisition spurs communication between upper management and lower levels it may also incorporate bottom-up pressures to enhance the entrepreneurial orientation of the firm. Evidence suggests, that seedlings of entrepreneurial efforts may reside at the middle management level (Floyd & Wooldridge, 1997; Hornsby, Kuratko, Shepherd, & Bott, 2008). Middle managers are deemed to have considerable responsibilities while still being fully embedded in operational processes. Through their detailed case-specific knowledge and expertise they are pre-eminently equipped to seek out and select viable entrepreneurial opportunities within their respective units and strengthen the firms entrepreneurial orientation in dialogue with top management (Wooldridge, Smith and Floyd, 2006). For example, they may share knowledge regarding organizational resources, such as raw materials or human capital but also specialized technologies or excess production capacity (Hornsby, Kuratko and Zahra, 2002). Together this information allows senior

teams to recognize the potential as well as room to maneuver for enhancing the entrepreneurial orientation of the firm.

H1a: Senior team internal knowledge acquisition has a positive effect on entrepreneurial orientation

External Knowledge. Knowledge from external sources is typically sought from advisors with information not proprietary to the focal firm, its members, or its internal relations (Cassiman & Veugelers, 2006; Rosenkopf & Nerkar, 2001). Menon & Pfeffer (2003) note that external knowledge tends to be less-rich in detail, farther removed from existing path dependent conditioning, and higher in subjective value because it tends to be a scarcer resource and more difficult to access. This knowledge serves to help managers stay in touch with reality by providing them with managerial interpretations of state-of-the art best practices, market information, competitive moves by rivals and expert analysis that the managers might not have themselves (Glückler & Armbrüster, 2003; Kets de Vries, 1989).

External knowledge acquisition provides for rejuvenation of the existing knowledge base of the senior team. It provides for the necessary variation, providing potential for recombination of newly acquired with existing knowledge (March, 1991). Moreover, external knowledge acquisition enables senior teams to pursue entrepreneurial initiatives that go beyond recombining knowledge. External knowledge is an important source for radical change as it has the potential to depart from the existing knowledge base, giving rise to novel entrepreneurial initiatives (Rosenkopf and Nerkar, 2001). With these new informational inputs senior teams are provided with a rich foundation for enhancing entrepreneurial orientation.

In monitoring environmental developments and their connection with opportunities for innovative, proactive or risk taking behavior, external knowledge acquisition plays an important role. It signals path dependencies relative to competitors as well as market opportunities to distinguish themselves from rivals (Banbury and Mitchell, 1995). The external environment determines the level playing field within any given industry. Hence, senior teams acquiring external knowledge are better equipped to match their entrepreneurial orientation with environmental requirements (Cassiman and Veugelers, 2006). In addition to the informative aspect of external knowledge, it may also fulfill an important political role within the realm of the senior team. Senior team members may have different preferences and deliberations regarding potential entrepreneurial initiatives. External evaluation of projects may help in elevating the legitimacy associated with entrepreneurial initiatives, enabling senior teams to reach consensus on specific entrepreneurial efforts, rather than to discard them due to irreconcilable conflict (Miller and Friesen, 1983; McMullen and Shepherd, 2006).

H1b: Senior team external knowledge acquisition has a positive effect on entrepreneurial orientation

Combining internal and external knowledge. Given the distinct benefits of internal and external knowledge sources, it is interesting to consider their combined impact on entrepreneurial orientation. Combining the relevant insights with regard to the internal state of the firm with external cues with regard to entrepreneurial opportunities enables senior teams to retain a proactive outlook, remain innovative on a continuous basis and make more in depth risk assessment that allow entrepreneurial opportunities to translate into actionable avenues for future strategy formation. Whereas senior teams focusing primarily on either internal or external knowledge may experience knowledge gaps, senior teams acquiring knowledge from both sources are expected to be better

informed regarding the actual potential for deploying entrepreneurial activities (Rosenkopf and Nerkar, 2001). The ability to initiate recombination of knowledge strands also functions to subdue potential restraints associated with entrepreneurial behavior. Senior teams need a detailed understanding and know-how of firm specific competencies in order to enable their departure from existing path dependent conditioning (Kogut and Zander, 1992). It allows them to pinpoint interesting avenues for compatible and complementary entrepreneurial initiatives, as well as to orchestrate the fit between existing activities and entrepreneurial avenues (Bartlett and Goshal, 1990). Synthesizing knowledge, acquired within and outside firm boundaries, aligns the strengths and weaknesses of the firm with the opportunities and threats arising in the external environment. This raises awareness regarding the need for adaptation of current practices in concurrence with availability of organizational resources and competencies. Moreover, senior teams acquiring both internal and external knowledge are able to frame such adaptations in line with environmental conditions, such as industry and technological standards, as well as customer acceptance and readiness (Hargadon and Douglas, 2001).

H1c; Senior teams that acquire both internal and external knowledge acquisition are expected to have a higher entrepreneurial orientation

The mediating role of decision making comprehensiveness. We investigate knowledge acquisition by senior teams both within and outside firm boundaries. Investigation of both types is deemed to be important as it provides senior teams with distinct advantages in decision-making processes (Rosenkopf and Nerkar, 2001). Senior teams displaying intensive knowledge acquisition deploy a broader knowledge scope to

their decision-making process leading to more scenarios being investigated (Menon and Pfeffer, 2003). Together, internal and external knowledge acquisition provides senior teams with essential knowledge regarding the current state of the firm in relation to environmental requirements. As senior teams involve the newly acquired knowledge in strategy formation, it results in more comprehensive decision-making processes. (Autio, Sapienza and Almeida, 2000).

Senior teams require in-depth understanding of the internal knowledge base as it allows insights from various levels within the firm to be included in subsequent decision-making processes. Acknowledgement and recognition of potentially conflicting perspectives and divergent goals at different levels within the organization may help to resolve contradictory agendas and prevent the firm from devolving into fragmented structures (Jansen, George, Van den Bosch and Volberda, 2008). Different senior team members often represent opposing views within the firm and their decision-making processes are often a direct representation of potential firm level contradictions (Tsai and Ghoshal, 1998). Therefore, senior teams play an important role in managing these potential conflicts and the delicate notion of differential internal interests forms an important part of their decision-making processes (Eisenhardt and Bourgeois, 1988). A broad understanding regarding interests and insights at various levels within the firm enables senior teams to investigate multiple perspectives and explore objective as well as political viability of different scenarios before reaching consensus. This allows managers to broaden the scope of their decision-making processes and consider more alternative business solutions and scenarios.

External knowledge is more varied in that it adheres to different cognitive scripts of outsiders, and can help the basic questioning of underlying operating assumptions or governing principles of the dominant managerial logic that can potentially become, or

have become, harmful to the functioning of the firm (Akbar, 2003; Robson & Bennet, 2000). External knowledge further tends to challenge or ratify the extant beliefs of the distinct competences of the firm in relation to its environment (Larsson, Hedelin, & Garlin, 2003; Weick, Sutcliffe & Obstfeld, 2005). It tends to be considered more 'objective' because it is less colored by previous successes and failures of a single organization which are stored in organizational memory, myths, and symbols that outlive individual actors and events (Crossan & Bedrow, 2003). Subsequently, external knowledge provides an objective foundation for senior teams to increase the comprehensiveness of their decision-making processes.

While acquisition of internal and external knowledge is important to trace new developments, both within and outside firm boundaries, its combined value is only exposed when appropriately evaluated. Its value and applicability for enhancing the entrepreneurial orientation only becomes apparent once aligned and integrated with the existing knowledge base (Szulanski, 1996). Senior teams characterized by comprehensive decision making processes are expected to be more effective in recognizing the value, realize viable connections and reducing uncertainty associated with newly acquired knowledge (Heavey et al. 2009).

Upper echelon models maintain that organizations and their corresponding strategic behavior are essentially reflections of their top managers (Hambrick & Mason, 1984). The senior team is typically defined as the formal decision making unit of executives in the strategic realm of the firm (Wiersema & Bantel, 1992). For the senior team to enhance the entrepreneurial orientation on the basis of newly acquired knowledge, they need to make sense of the opportunities they are presented with. Sense making, as Huber (1991: 89) defined it, takes place when an entity, through its processing of information, experiences changes in the range of its potential behavior. In

fact, the upper echelons perspective is principally a theory of knowledge processing, where managers act on the basis of their filtered construal of reality (Cho & Hambrick, 2006). Nystrom & Starbuck (1984) noted that senior team decision making dominates firm behavior, but can also impede new entrepreneurial avenues when unreceptive to new ideas and unwilling to depart from existing practices. Senior teams' consideration of newly acquired knowledge and assessment of novel strategic options is essential for development of an entrepreneurial orientation (Floyd & Lane, 2000). It rejuvenates their cognitive base and enhances their repertoire of viable strategies in combating path dependencies. Wiersema & Bantel (1992: 94) defined this cognitive base as "assumptions about future events, knowledge of alternatives, and the consequences attached to alternatives."

Hence acquired knowledge needs to be processed in a comprehensive manner that allows for evaluation of a broad selection of alternatives, rather than reaching early consensus. The core challenge of senior teams is to derive strategies from the integration of knowledge from different inputs (Carlile & Rebentisch, 2003; Lawrence et al, 2005). Senior teams need to bring internal and external knowledge to their task situations (i.e. decision making) and as they interact during the decision-making process, interpret, recombine and synthesize the acquired knowledge (Augier, Shariq & Vendelo, 2001). As a result the level of uncertainty facing senior teams is substantially reduced, alleviating restrictions for developing an entrepreneurial orientation (Heavey et al. 2009). Hence, although internal and external knowledge acquisition provides a strong foundation for entrepreneurial orientation, the mindset at senior team level may only change if newly acquired knowledge and resulting alternatives for strategy formation are adequately evaluated at senior team level.

H3: Comprehensiveness of decision making mediates the joint impact of internal and external knowledge acquisition on entrepreneurial orientation

METHOD

Research setting and data collection. For the purpose of this research we randomly identified a sample of 9.000 firms within the Netherlands from REACH database. The survey was conducted in two instances. The independent variables have been measured in the 2008 survey. Our process and dependent variables are measured in the 2009 survey. The survey of 2008 resulted in an overall response rate of 10,8 percent. The survey in 2009 amongst the 970 firms that had responded to our survey in 2008, resulted in a response rate of 21,4 percent or 208 firms in total. Firms in the sample had a mean age of 36.2 years (s.d. 31.4 years) and a mean size of 226 employees (s.d. 1157). With respect to the different industries we obtained responses from agricultural and natural resource firms (6%), semi-manufacturing firms (21%), utilities and construction firms (19%), trading firms (5%), transportation and communication firms (9%), professional service firms (25%), semi-public sector (3%) and manufacturing firms (7%). Firms in the 2009 sample had a quite similar mean age, mean size and average senior team size as the sample in 2008, moreover the industries within our 2009 sample were similarly dispersed as in the 2008 sample.

To test for non-response bias, we investigated potential differences between the respondents and non-respondents with respect to size in terms of number of employees, age of the firm and size of the senior team. No significant differences could be found at the ($p>0.05$) level, which indicates that non-response is not a problem with respect to

the abovementioned aspects. To tackle additional reliability issues related to single informant bias we collected data from a second senior team member for each firm. Response rate was lower than our primary survey but we managed to obtain a response rate of 18.4 percent from the lagged sample of 208 firms. Our interrater agreement scores ranged from .79 to .98 suggesting high overall agreement and thus we conclude that single informant bias is not a problem within our sample (James, Demaree and Wolf, 1993). We also assessed the intra-class correlations which were significant at the .001 level, suggesting a strong level of interrater reliability (Jones, Johnson, Butler and Main, 1983). As a final step we performed the Harman's one factor test on the items included in the regressions to investigate issues related to common method bias. As we found multiple factors to be present and the variance was evenly dispersed among the factors, we conclude that common method bias did not augment the hypothesized relationships. Hence, we conclude that we do not have to be concerned about common method bias (Podsakoff and Organ, 1986).

Measurement and validation of constructs. The constructs utilized in this study are scales comprised of multiple items that have been tested by means of various analyses. The independent and mediating variables have been measured in the 2008 survey. Our dependent variable is measured in the 2009 survey.

Entrepreneurial orientation. We use a nine item scale for measuring entrepreneurial orientation proposed by Covin and Slevin (1989). It measures proactiveness, risk taking and innovation with 3 items each. The average of the individual items is used as the entrepreneurial orientation of the firm. The 9-item scale of entrepreneurial orientation is reliable at $\alpha = .87$. Confirmatory factor analysis reveals that the 9 items of the construct load on one dimension, (NFI = .92, CFI = .94, RMSEA =

.07). For further validation of our measure for entrepreneurial orientation we investigated the correlation with objective indicators of a firms entrepreneurial posture, such as the average percentage of sales spent on R&D ($r = .27, p < .01$) and the number of new products introduced in the past year ($r = .30, p < .01$) (Stam and Elfring, 2008).

Independent constructs: internal and external knowledge acquisition. In line with previous literature, we adopted a multi-item scale for both internal and external knowledge acquisition (McDonald and Westphal, 2003). As McDonald and Westphal focus on internal and external advice seeking and we focus on knowledge acquisition specifically, we changed the items accordingly. The items now refer to the amount of knowledge acquired with respect to the current strategy, the amount of knowledge acquired with respect to the future strategy and the amount of knowledge acquired in general. This approach represents an addition to Westphal and McDonald (2003) as knowledge acquisition pertains to a broader scope than advice seeking. Before we can confidently use both constructs in our analysis, we need to verify that both display convergent and divergent validity. After exploratory factor analyses we can conclude both constructs to load on 2 separate dimensions. Cross-loadings do not exceed .13 and the loadings of the appropriate items on their dimension are all greater than .86. Both scales were reliable; internal knowledge acquisition, $\alpha = .89$ and external knowledge acquisition, $\alpha = .93$.

Decision making comprehensiveness. We measure decision making comprehensiveness using Miller, Burke and Glick (1998) 5-item scale. Using factor analyses we conclude the items to load on one factor with factor loadings ranging from .56 to .81, moreover the scale proves reliable with $\alpha = .87$. Items refer to the extent to which senior teams develop different scenarios for goal attainment as well as the scope of knowledge taken into account for strategy development.

Control variables. In this study we control for a number of objective measures such as firm age, firm size, senior team size and industry type. *Environmental dynamism.* Our measure for environmental dynamism is based on previous research (Dill 1958; Jansen et al. 2006). It taps into the rate of change and the instability that firms experience in the external environment. The five item measure proved reliable $\alpha = .81$ and loads on one dimension with factor loadings between .71 and .81. It is important to control for the level of environmental dynamism as it may well be that senior teams operating in a dynamic environment are more entrepreneurial as well as more inclined to acquire new knowledge.

Firm age is deemed to be important as older firms are expected to become more inert over time (Hannan and Freeman, 1984), hence we adopt a measure for firm age by including the natural logarithm for the number of years since the firm was first founded. *Firm size* is expected to play a role in the entrepreneurial process as large firms are expected to have more resources available to pursue entrepreneurship. However, due to institutional forces they might lack the flexibility to benefit from this advantage. Finally, we control for industry effects by including an *industry dummy* for the selected industries.

RESULTS

In table 1, depicted below, we present the descriptive statistics and the correlation matrix for the variables included in the study. With respect to issues related with multicollinearity, we calculated the variance inflation factors (VIF) for each of the regression equations. The maximum VIF we found was 3.73 which was assigned to one of the industry dummies, and the maximum VIF assigned to one of the main constructs was 1.53, both well below the cut-off point of 10 (Neter, Wasserman and Kutner, 1990).

We also checked for heteroskedasticity using White's test (1980) but did not find any evidence that would lead us to suspect serious problems related to this issue.

TABLE 1
Descriptive Statistics and Correlation Matrix

Variable	Mean	s.d.	1	2	3	5	6	7
1)Internal knowledge Acquisition	5.10	1.24						
2)External Knowledge Acquisition	4.03	1.35	.29 **					
3)Decision Making Comprehensiveness	4.74	.86	.22 **	.22 **				
5) Entrepreneurial Orientation	4.35	1.05	.21 **	.21 **	.30 **			
6)Environmental dynamism	4.52	1.28	.11 **	.23 **	.05	.20 **		
7)Log (Firm Age)	1.36	.35	-.05	-.08	.10	.04	-.13	
8)Log (Firm Size)	1.07	.39	-.06	.07	.01	.13	-.01	.09

N=201 ** p< 0.01 * p< 0.05

Table 2 depicted on the next page, presents the results for our proposed model. The first three models depict the results for entrepreneurial orientation, model 4 and 5 show the results for decision making comprehensiveness. Model 1 (EO) presents the results with only the control variables included in the regression. As can be inferred from the table, none of the control variables except for environmental dynamism play a significant role. It underlines the importance of our control for the level of environmental dynamism as it clearly correlates with entrepreneurial orientation. Model 2 (EO) depicts the results for senior team internal and external knowledge acquisition. It shows that both internal and external knowledge acquisition have a positive impact on entrepreneurial orientation ($\beta = .17, p < 0.05$) and ($\beta = .14, p < 0.05$) respectively. Model 3 assesses the interactive effect of internal and external knowledge acquisition on EO, we find a positive interaction at ($\beta = .15, p < 0.05$).

TABLE 2
Regression results on Entrepreneurial Orientation

	Model 1		Model 2 (EO)		Model 3 (EO)		Model 4	
	(EO)		(EO)		(EO)		(EO)	
	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)
Constant	3.62 (.43)		4.23 (.33)		2.58 (.52)		1.56 (.60)	
Industry1	0.56 (.44)	.12	.52 (.45)	.10	.48 (.43)	.10	.24 (.24)	.09
Industry2	.04 (.35)	.02	.14 (.34)	.03	.08 (.34)	.03	.04 (.33)	.01
Industry3 (Reference Category)								
Industry4	-.12 (.48)	-.02	-.16 (.48)	-.04	-.20 (.47)	-.04	-.13 (.46)	-.02
Industry5	-.22 (.38)	-.07	-.10 (.38)	-.07	-.22 (.37)	-.07	-.15 (.36)	-.05
Industry6	-.13 (.37)	-.04	.10 (.36)	.01	.02 (.36)	.01	.08 (.35)	.03
Industry7	-1.03 (.68)	-.12	-.05 (.78)	-.10	-.91 (.66)	-.10	-.73 (.65)	-.08
Industry8	-.06 (.35)	-.02	-.06 (.34)	-.02	-.05 (.34)	-.02	-.09 (.33)	-.04
Industry9	-.03 (.53)	-.01	.02 (.52)	.01	.02 (.51)	.01	.02 (.50)	.01
Industry 10	.26 (.57)	.04	.30 (.54)	.05	.31 (.55)	.05	.39 (.54)	.06
Industry 11	-.61 (.50)	-.11	-.63 (.48)	-.12	-.69 (.49)	-.12	-.76 (.48)	-.13
Log (firm size)	.04 (.01)	.04	.03 (.01)	.04	.03 (.01)	.04	.03 (.01)	.03
Log (firm age)	-.02 (.03)	-.01	-.02 (.03)	.01	-.02 (.03)	.01	-.01 (.01)	-.02
Internal knowledge acquisition			.13 (.07)	.15 *	.15 (.07)	.17 *	.11 (.07)	.13
External knowledge Acquisition			.13 (.06)	.16 *	.11 (.06)	.15 *	.09 (.06)	.11
Internal knowledge acquisition * External knowledge Acquisition					.09 (.05)	.15 *	.08 (.05)	.13
Decision making comprehensiveness							.28 (.09)	.22 **
R-square		.04		.11		.16		
R-Square adjusted		.02		.04		.08		

N=201** p< 0.01 * p< 0.05

Model 4 (EO) includes senior team decision making comprehensiveness. Once senior team decision making comprehensiveness is taken into account the independent effect of internal and external knowledge acquisition as well as their interaction is no longer significant. Table 3 depicted on the next page presents the results with respect to decision making comprehensiveness. Model 5 shows the impact of senior team internal and external knowledge acquisition on decision making comprehensiveness.

Results show that internal and external knowledge acquisition by senior teams does impact decision making comprehensiveness of senior teams with ($\beta = .16, p < 0.05$) and ($\beta = .17, p < 0.05$) respectively. However, the interactive term is not significant in predicting comprehensiveness of decision making, signaling that decision comprehensiveness does not mediate the combined impact of internal and external knowledge acquisition, but rather their separate impact, on entrepreneurial orientation. We assessed the separate mediating effect of decision making comprehensiveness on the relationship between (I) internal and (II) external knowledge acquisition and entrepreneurial orientation and found that both separate mediating effects are significant when assessed with a sobel test ($p < 0.05$).

TABLE 3
Regression results Decision making comprehensiveness

	Model 4 (DC)		Model 5 (DC)		Model 6 (DC)	
	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)
Constant	4.54 (.36)		3.67 (.43)		4.63 (.26)	
Industry1	.52 (.36)	.14	.47 (.36)	.12	.46 (.35)	.12
Industry2	.13 (.29)	.06	.16 (.28)	.08	.18 (.27)	.08
Industry3 (Reference Category)						
Industry4	-.19 (.40)	-.04	-.25 (.39)	-.06	-.25 (.39)	-.06
Industry5	-.26 (.31)	-.09	-.26 (.30)	-.10	-.15 (.30)	-.06
Industry6	-.24 (.30)	-.12	-.20 (.30)	-.08	-.10 (.30)	-.05
Industry7	-.75 (.56)	-.11	-.65 (.55)	-.09	-.03 (.61)	-.01
Industry8	.14 (.29)	.07	.15 (.28)	.08	.20 (.28)	.10
Industry 9	-.03 (.43)	-.01	.02 (.42)	.01	.09 (.42)	.01
Industry 10	-.33 (.47)	-.06	-.29 (.45)	-.05	-.29 (.45)	-.05
Industry 11	.32 (.42)	.07	.24 (.40)	.05	.24 (.40)	.05
Log (firm size)	.03 (.01)	.02	.02 (.01)	-.01	.02 (.01)	-.01
Log (firm age)	.01 (.01)	.01	.01 (.01)	.01	.01 (.01)	.01
Internal knowledge acquisition			.11 (.05)	.17 *	.11 (.05)	.17 *
External knowledge Acquisition			.09 (.04)	.15 *	.09 (.04)	.15 *
Internal knowledge acquisition*					.04 (.04)	.07
External knowledge Acquisition						
R-square		.08		.13		.13
R-Square adjusted		.02		.06		.06

N=201 ** p< 0.01 * p< 0.05

DISCUSSION AND CONCLUSION

Strategic scholars strive to understand the drivers of entrepreneurial orientation that enable senior teams to develop a strategy that incorporates both internal and external requirements for sustainable competitive advantage. In this study, we develop a model regarding the impact of senior team determinants and contend that senior teams require certain characteristics in order to develop an entrepreneurial orientation. Our results suggest that senior teams striving to establish an entrepreneurial orientation need to acquire both internal and external knowledge. We also find that senior teams focusing on either internal or external knowledge need to engage in comprehensive decision making processes to enable their understanding of the newly acquired knowledge and transform it into viable entrepreneurial avenues.

Our proposed model regarding the mediating role of decision making comprehensiveness between knowledge acquisition and entrepreneurial orientation has been partially substantiated. Our findings with respect to the importance of initial knowledge acquisition, both within and outside firm boundaries adds to the understanding of the relevance of knowledge for senior team decision making as well as for development of an entrepreneurial orientation. It supports the knowledge based view of the firm (Grant 1996) and acknowledges the importance of continuous renewal of the existing knowledge base, from sources both within and outside firm boundaries, as a prerequisite for enhancing the entrepreneurial orientation of the firm (March, 1991).

Theoretical implications. Our paper contributes to existing literature regarding the antecedents of entrepreneurial orientation. First, it underlines the importance of internal and external knowledge acquisition as to ensure the quality as well as variety of

the knowledge base for subsequent decision making and strategy formation (Katila and Ahuja, 2002). It allows senior teams to consider more alternative scenarios and integrate strategic decisions enhancing the comprehensiveness of their decision making process (Miller, Burke and Glick, 1998). Although research pertaining to the enabling role of decision making comprehensiveness for achieving risky, proactive and innovative business solutions is widespread (Eisenhardt, 1989; Atuahene-Gima and Li, 2004; Heavey et al. 2009), the drivers of decision comprehensiveness often remain overlooked. Decision making comprehensiveness is a delicate process that may only occur under specific circumstances, i.e. senior team members need to possess relevant knowledge and be willing and able to share this information. Our research focuses on knowledge acquisition as a driver of decision comprehensiveness as it adheres strongly to the content dimension of the decision making process, providing senior teams with important knowledge cues for subsequent decision making. The mediating role of decision making comprehensiveness has been shown to play an important role in previous studies (Miller, Burke and Glick, 1998; Simons, Pelled and Smith, 1999). The interpretative function of decision making comprehensiveness enables senior teams to recognize the valuable elements in newly acquired knowledge reducing uncertainties and doubt associated with entrepreneurial avenues. It builds confidence for goal attainment enabling entrepreneurial orientation as a guiding strategic asset for strategy formation (Heavey *et al.*, 2009).

Interestingly, results show decision making comprehensiveness to mediate between the separate notions of internal and external knowledge acquisition and entrepreneurial orientation, but not between the combined interactive impact of internal and external knowledge acquisition and entrepreneurial orientation. This indicates that senior teams simultaneously engaging in internal and external knowledge

acquisition reduce many of the uncertainties that prohibit firms to commit strongly entrepreneurial initiatives. The ambiguity surrounding newly acquired knowledge as well as the uncertainty regarding its applicability for entrepreneurial initiatives may be less pervasive in comparison to less complete informational circumstances. The thorough understanding of the firms' strengths and weaknesses in relation to the opportunities and threats reduces the need to consider an extended amount of potential alternative business scenarios. For example, a senior team acquiring internal knowledge but lacking understanding regarding its external applicability may be more inclined to consider more potential scenarios than a more completely informed senior team that is able to quickly tie internal with external potential for entrepreneurial initiatives.

Conversely, the combined impact of both knowledge sources does enable firms to increase their entrepreneurial orientation. Hence, apart from the apparent benefits internal and external knowledge acquisition represent separately, combining both modes of knowledge acquisition offers a premium for senior teams aiming to enhance the entrepreneurial orientation of the firm. The ability to quickly match internal with external potential for entrepreneurial initiatives by engaging in both internal and external knowledge acquisition would provide an interesting explanation for the link between simultaneous acquisition of internal and external knowledge and entrepreneurial orientation. As senior teams do not necessarily need to engage in comprehensive decision making processes in order to enhance their entrepreneurial orientation, they are expected to act more timely in the wake of environmental changes and be more proactive. The continuous recombination of internal and external knowledge also makes them more innovative as it enables them to make more efficient use of the internal and external cues for entrepreneurial initiatives.

While the importance of knowledge acquisition and subsequent decision making has been widely advocated in both conceptual (Zahra and George, 2002; Todorova and Durisin, 2007) as well as empirical papers (Liao et al. 2003; Heavey et al. 2009), applications of empirical analyses often do not include initial knowledge acquisition. By combining the notion of knowledge acquisition with decision comprehensiveness and entrepreneurial orientation, we provide an empirical model that maps an important part of the cognitive chain that compels senior teams to enhance the entrepreneurial orientation of the firm. Our model underlines that a focus on either internal or external knowledge acquisition although providing some initial clarification for enhancing the entrepreneurial orientation of the firm is insufficient in describing the entire cognitive chain. Senior teams with a distinct focus on either internal or external knowledge can benefit from engaging in comprehensive decision making processes, and thereby increase the impact on the resulting entrepreneurial orientation. Senior teams focusing on both types of knowledge at the same time however, may enjoy the benefits of their diverse knowledge acquisition strategy without the mediating role of decision comprehensiveness.

Limitations & future research. Our study is prone to several boundary conditions that offer fruitful avenues for future works. First of all, we have looked at the relationship between knowledge acquisition and decision making comprehensiveness under *ceteris paribus* conditions. However, one obvious avenue would be to consider how different environmental conditions play a role, and how the quantitative and qualitative properties of knowledge acquisition could be contingent on this. Furthermore, the effect of decision making comprehensiveness may be analyzed more thoroughly, investigating potential moderating effects on its applicability. For example Frederickson and Mitchell, (1984) maintain that decision making comprehensiveness

may reach a boundary condition in dynamic contexts. Since entrepreneurial orientation is especially important in dynamic environments this element should be further investigated.

Next, our conceptualization of knowledge acquisition has been from the perspective of the senior team. However, more insights could be obtained by adopting network approaches to understanding knowledge acquisition. Of particular interest could be looking at *who* senior team members turn to for their knowledge inputs in a dynamic system of social relations and how this affects the way they use this. Finally, cultural and contextual aspects cannot be ruled out, and thus comparative works of replications and extensions in other national settings could help validate our results. Future works in this stream of thought could benefit substantially from these considerations.

Conclusion. This study underlines the important role of senior teams in navigating change. Senior team knowledge acquisition enables the interpretative and integrative processes that precede entrepreneurial orientation. The important role of senior team decision making is confirmed as a mediating element, however only for the separate notions of internal and external knowledge acquisition. This marks the importance of both distinct knowledge sources as a prerequisite for comprehensive decision making processes. Furthermore, senior teams engaging in both internal and external knowledge acquisition may enhance their entrepreneurial orientation irrespective of the comprehensiveness of their decision making processes. Overall, our study signals the beneficial impact of senior team involvement and calls for further attention to antecedents of entrepreneurial orientation in general and senior team involvement in particular.

CHAPTER 3: Entrepreneurial Orientation and Firm Performance; Drawing Attention to the Senior Team

ABSTRACT

This study aims to assess how senior team attributes moderate the relationship between entrepreneurial orientation and firm performance. We find that senior team heterogeneity helps firms to leverage their entrepreneurial orientation and improve their performance. Moreover, once environmental conditions are taken into account, results indicate that the absence of heterogeneity at senior team level may be particularly detrimental for firms operating in stable environments. The direct moderating effect of shared vision on the relationship between entrepreneurial orientation and performance is not substantiated. However, senior team shared vision has a positive impact for firms operating in dynamic environments, providing a premium for firms aiming to realize the inherent value of entrepreneurial orientation. Our research provides important implications for senior teams aiming to leverage their entrepreneurial orientation into increased firm performance. Evidence shows that while a heterogeneous team composition and senior team shared vision may provide several benefits, these advantages may fluctuate across environmental conditions.

Keywords: Entrepreneurial orientation, firm performance, senior teams, heterogeneity, shared vision, environmental dynamism

INTRODUCTION

The emergence of entrepreneurial orientation has enriched literature on corporate entrepreneurship and venturing (Lumpkin and Dess, 1996; Lyon, Lumpkin and Dess, 2000; Covin, Green and Slevin, 2006). Entrepreneurial orientation refers to the strategic posture of firms in terms of risk taking, innovativeness, and proactiveness (Miller, 1983). The link between entrepreneurial orientation and firm performance has been extensively researched in the past few years (e.g. Lumpkin and Dess, 2001; Covin, Green and Slevin, 2006; Rauch et al. 2009). Most studies find that entrepreneurial orientation enhances firm performance, but highlight the importance of considering boundary conditions. For example, previous research has assessed the contingency role of firm resources (Wiklund and Shepherd, 2003), firm culture (Burgelman, 1984), firm structure (Covin and Slevin, 1990; Green, Covin and Slevin, 2008), social capital (Stam and Elfring, 2008) as well as environmental attributes (Covin and Slevin 1989; Lumpkin and Dess, 2001; Wiklund and Shepherd, 2005; Zahra and Covin, 1995).

Considering the wide array of research regarding potential boundary conditions, it is surprising that little attention has been paid to the role of senior team attributes. Upper echelon theory suggests senior teams to play a pivotal role in determining organizational outcomes, strategic choices and performance levels (Hambrick, 1984). By developing a conceptual framework on senior team attributes, this research provides novel insights into specific ways how senior executives may increase the impact of entrepreneurial orientation on firm performance. For instance, senior teams are instrumental in establishing a coherent corporate strategy that allows for potential synergies to emerge between entrepreneurial initiatives and ongoing business (Hambrick, 1994, Thornhill and Amit, 2000). In addition, senior teams may establish a common understanding with regard to the importance of entrepreneurial orientation to

firm survival, thereby aligning goals across organizational functions (Baum, Locke and Kirkpatrick, 1998; Amason, Shrader and Thompson, 2006). By addressing the ways in which senior teams may increase the value creating potential of entrepreneurial orientation, this article explores a novel avenue in entrepreneurial orientation research.

Senior teams are considered to be the key decision makers within firms, yet possess a limited capacity in terms of scanning the entire spectrum of emerging entrepreneurial opportunities as well as linking them to current activities (Simon, 1979). This study suggests that the importance of senior teams in managing a firm's entrepreneurial orientation can be better understood by considering the attention based view (Ocasio, 1997). It asserts decision makers to be rationally bounded in dividing their attention focus amongst cues associated with new entrepreneurial initiatives. The attention based view further recognizes that setting out a common vision for entrepreneurship is vital for channelling distributed attention across multiple organizational functions into a shared horizon (Simon, 1947).

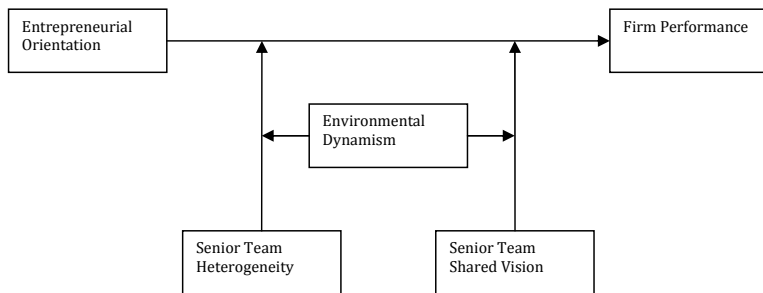
By investigating senior team' *task related heterogeneity* and *shared vision*, this article intends to focus on the attention scope of the senior team as well as its aptitude for reconciling distributed attention across the organization. Task related heterogeneity offers a broad knowledge base and adds to the combinative capability of senior teams (Cohen and Levinthal, 1990; Kogut and Zander, 1992). This broadens the attention scope and enhances the ability to recognize viable entrepreneurial opportunities. A broader initial attention scope will enrich the potential of realizing the added value of a firm's entrepreneurial orientation. Senior teams are able to assess a greater number of potential entrepreneurial initiatives, leading to a more comprehensive entrepreneurial strategy for leveraging their entrepreneurial orientation.

Senior team shared vision enables the establishment of a shared understanding and reduces the fragmented distribution of attention across organizational functions (Jansen et al. 2008). It plays an important role in leveraging entrepreneurial orientation as it provides selected entrepreneurial initiatives with support in terms of legitimacy and resources, providing a context supportive to entrepreneurial champions and alleviating the tensions associated with new entrepreneurial initiatives. Together both attributes equip senior teams with the capabilities necessary to successfully leverage the firm's entrepreneurial orientation, leading to increased performance.

In addition, decision making is considered context specific requiring situated attention, to allow senior teams to align their entrepreneurial strategy formation with environmental requirements. This article contributes to literature on entrepreneurial orientation by considering the role of environmental dynamism and investigates how senior team attributes may enhance the value creating potential of entrepreneurial orientation under different environmental conditions (Ocasio, 1997). This enriches our argument and adds to the theoretical understanding of the attention based view by considering how environmental dynamism impacts the role of senior team heterogeneity and shared vision. Dynamic environments are characterized by "rapid, discontinuous change in demand, competitors, technology, and/or regulations such that information is often inaccurate, unavailable, or obsolete" (Eisenhardt & Bourgeois, 1988, p. 816). This results in high uncertainty and increased complexity (Lawrence and Lorsch, 1967), while simultaneously commanding senior team responsiveness, both in their decision making processes pertaining to adoption of entrepreneurial opportunities, as well as subsequent implementation of entrepreneurial projects (Eisenhardt, 1989; Baum and Wally, 2003).

The conceptual model, presented in Figure 1, depicts the hypothesized relationships. Following the literature review and hypothesis development, the empirical findings are presented using lagged survey data of 346 organizations operating in various industries in the Netherlands. Finally, the article is concluded with a discussion of the results, potential implications and suggestions for future research.

FIGURE 1
Conceptual Model



LITERATURE REVIEW AND HYPOTHESES

Entrepreneurial orientation has been conceptualized as the extent to which organizations are innovative, proactive, as well as risk takers (Miller, 1983). *Innovativeness* refers to the inclination to pursue new products and services (Zahra and Covin, 1995; Lumpkin and Dess, 2001). *Proactiveness* entails the tendency to take the initiative and achieve a first mover advantage (Covin, Green and Slevin, 2006). *Risk taking* refers to the propensity to invest in entrepreneurial initiatives with an uncertain outcome, as well as to operate in a leveraged manner (Lumpkin and Dess, 1996). It enables firms to deal with the uncertainties associated with entrepreneurial activities, however the relationship between entrepreneurial orientation and firm performance is highly dependent on contextual conditions.

To unravel how senior teams shape the relationship between entrepreneurial orientation and firm performance, two distinct attributes of senior teams are investigated, i.e. task-related heterogeneity and shared vision. Both attributes are expected to influence strategic decision making processes of senior teams and subsequently impact the contributive nature of entrepreneurial orientation to firm performance (Covin, Green and Slevin, 2006). Senior team *heterogeneity* refers to differences across senior team members in terms of task-related aspects, i.e. 'differences in the specific skills and abilities needed to perform a job' (Hambrick, Cho and Chen, 1996: 663). Senior team *shared vision* refers to the extent to which senior team members have collective goals and shared aspirations as well as the level of commitment accompanying these goals and aspirations (Larwood et al. 1995; Jansen et al. 2008). Senior team heterogeneity and shared vision provide senior teams with valuable socio-cognitive advantages as to successfully leveraging the entrepreneurial orientation into increased firm performance (Ginsberg, 1994). For instance, prior studies have argued

that senior team heterogeneity increases the breadth of perspectives and cognitive resources embedded within senior teams. Such a variety of perspectives increases the distinct repertoires and broadens the attention scope, senior team members may draw upon in order to gain strategic insight in their entrepreneurial orientation (Hambrick, Cho and Chen, 1996). The common values and aspirations resulting from senior team shared vision ensure commitment to set objectives and facilitate an integrated approach. This is instrumental for embedding entrepreneurial orientation as a solid part of firm strategy and resolving the potential contradictory distribution of attention across entrepreneurial initiatives and existing activities (Tsai and Goshal, 1998).

Senior team heterogeneity. The impact of a firm's entrepreneurial orientation on subsequent performance relies heavily on the ability of the senior team to leverage a portfolio of entrepreneurial initiatives. When identifying and selecting emerging entrepreneurial initiatives and deciding whether to proceed in different stages of development, senior teams need to continuously reassess the strategic fit with activities in place as well as the evolving business environment (Barnett, 2008). However, senior teams are limited in their attention scope and therefore rationally bounded in their evaluation of the entire spectrum of emerging entrepreneurial initiatives (Ocasio, 1997). Heterogeneity in task-related aspects among senior team members provides the range of knowledge, skills and attention scope necessary for gauging the potential value-added of a broader spectrum of emerging entrepreneurial initiatives (Bantel and Jackson, 1989; Ancona and Caldwell, 1992).

Heterogeneity of senior team members in diverse areas of expertise broadens the attention scope by providing them with distinct advantages. Heterogeneous senior teams draw from a broader repertoire of expertise (Bantel and Jackson, 1989), enjoy enhanced absorptive capacity (Cohen and Levinthal, 1990) and are characterized by

more purposeful team discussions (Van Knippenberg and Schippers, 2007). Entrepreneurial initiatives, arising from the firm's entrepreneurial orientation, are characterized by uncertain outcomes that may complicate the rational process of recognizing their strategic and financial contributions. Moreover, initiatives may derive from diverse functional areas, impact the future strategic direction of the firm in various ways and represent different levels of immediacy in terms of desired outcomes and/or commercialization. The distinct advantages of heterogeneous senior teams function to subdue these uncertainties and steer attention to those initiatives that provide the best strategic fit and add most to firm performance (McMullen and Shepherd, 2006; Naman and Slevin, 1993).

Senior team heterogeneity also increases the combinative capability of senior teams (Kogut and Zander, 1992). It enables them to synthesize and apply current and newly acquired knowledge and realize additional synergies between emerging entrepreneurial initiatives and existing activities. Establishing such a strategic fit between entrepreneurial initiatives and activities in place allows firms to more effectively leverage existing competencies and resources enhancing the performance effects of entrepreneurial orientation (Thornhill and Amit, 2000). Moreover, it exposes complementary elements between the entrepreneurial portfolio and activities in place that build additional value for the parent firm. Whereas referral to vested interests and tight coupling would lead to path dependency and inertia in homogeneous senior teams, the variety of perspectives inhabiting heterogeneous senior teams (Van Knippenberg, de Dreu and Homan, 2004), allows them to improve firm performance by striking a balance between emerging entrepreneurial opportunities and existing businesses (Simons, Pelled and Smith, 1999).

H1: Senior team heterogeneity moderates the relationship between entrepreneurial orientation and firm performance in such a way that the positive effect of this orientation on performance is enhanced as senior team heterogeneity increases.

Senior team shared vision. Firms are typically characterized by distributed attention at different hierarchical levels and across a variety of organizational functions. Attentional processes of individual and group decision-makers are distributed throughout the multiple functions that take place in organizations, with different foci of attention in each local procedure, communication, or activity (Ocasio, 1997: 191). Overcoming distributed attention, i.e. the scattered beliefs and interests of actors involved in different entrepreneurial initiatives and/or existing activities, forms an important part of leveraging the entrepreneurial orientation of the firm. By providing senior teams with common goals and shared values (Larwood et al. 1995), senior team shared vision provides legitimacy to emerging entrepreneurial initiatives (Day, 1994) and functions to better integrate resulting entrepreneurial efforts into daily operations (Baum, Locke and Kirkpatrick, 1998).

The uncertain and fragmented nature of entrepreneurial initiatives at the fuzzy front end requires a shared vision at senior team level. A shared vision is instrumental in building and retaining legitimacy, while overcoming the lack of rational clues for continuing with selected entrepreneurial initiatives. This is especially valuable when entrepreneurial efforts become more radical and farther removed from core activities (Jansen et al. 2008). The rising distributed attention across entrepreneurial champions and status quo representatives may amplify organizational contradictions and result in the discarding of high potential initiatives as too risky or innovative. Entrepreneurial champions need to perceive availability of resources in line with the willingness of senior teams to commit to entrepreneurial projects (Amason, Shrader and Thompson,

2006). This creates a safe haven for entrepreneurial champions, facilitating commitment to high potential projects and providing the time needed to capture the inherent value of entrepreneurial initiatives as to increase firm performance (Day, 1994).

Apart from safeguarding initial development, senior team shared vision helps to translate the potentially diverging entrepreneurial initiatives back into a strategically coherent entrepreneurial portfolio with potential valuable inter-linkages. It resolves distributed attention and facilitates the emergence of spillovers across entrepreneurial activities. This ensures common goals to be attained instead of potentially conflicting sub-goals (Tjosvold, 1998). Goal communality plays an important role by aligning and synthesizing organizational resources that provide support for entrepreneurial initiatives. It helps organizational members at different organizational levels to recognize the potential value of resource exchange and combination, extending the resource pool as well as increasing its flexibility (Tsai and Ghoshal, 1998). Allocation, bundling and deployment of resources for entrepreneurial activities usually remains a sensitive issue throughout entrepreneurial development processes, however, is essential to maintain momentum as well as to realize the performance benefits of the firm's entrepreneurial orientation.

H2: Senior team shared vision moderates the relationship between entrepreneurial orientation and firm performance in such a way that the positive effect of this orientation on performance is enhanced as senior team shared vision increases.

Entrepreneurial Orientation, Senior Teams and Environmental Dynamism.

entrepreneurial orientation is essential in dynamic environments as it enables organizations to break through patterns of path dependency and organizational inertia, ensuring long term competitiveness and survival (Zahra and Zidhartha 1993; Zahra and Covin, 1995). However, environmental dynamism introduces situated attention to the

task situation of senior teams. Research has shown dynamic environments to make strategy formation more complex (Priem, Rasheed and Kotulic, 1995) as well as more dependent on time pressures (Eisenhardt, 1989; Baum et al. 2003; Heavey et al. 2009) constraining the ability of senior teams to increase the value creating potential of entrepreneurial orientation (Eisenhardt and Schoonhoven, 1990; Ensley, Pearce and Hmieleski, 2006). Environmental dynamism increases the potential for conflicting situations to arise within senior teams as unstable environmental conditions make strategy formation more ambiguous and simultaneously requires timely senior team interventions. As the rate of environmental change becomes more frenetic, senior teams are no longer granted the time for thorough consideration of multiple strategic alternatives. Conflict and elaborate strategy formation are therefore expected to become dysfunctional as they do not satisfy the time pressures of dynamic environments (Frederickson and Mitchell, 1984). Hence, it is argued that senior teams aiming to successfully leverage the firm's entrepreneurial orientation are presented with more challenging demands in dynamic environments.

Senior team heterogeneity and environmental dynamism. The enabling effect of senior team heterogeneity, such as the enhanced ability to extensively assess the scope of potential entrepreneurial initiatives and successfully manage the interface of entrepreneurial initiatives and existing activities is expected to be most pervasive in relatively stable environments. Reaping the benefits of comprehensive but lengthy decision making processes requires relative full information, low uncertainty and rather static environmental change patterns (Priem, Rasheed and Kotulic, 1995). These circumstances allow senior teams to gather 'complete' information with regard to emerging opportunities in the marketplace and apply their diverse set of knowledge and skills to assess viability of entrepreneurial potential (Heavey et al. 2009). The relatively

stable environment further permits extensive evaluation of how emerging opportunities may add to and align with existing activities (Kogut and Zander, 1992). Activities in place form an important part of the value chain for firms operating in stable environments and comprehensive assessment of implementation of entrepreneurial activities is vital to prevent value destruction and alienation from existing customers. The broad attention scope, in combination with comprehensive strategy formation by aligning entrepreneurial initiatives with existing activities, allows senior teams to substantially reduce the level of uncertainty associated with entrepreneurial initiatives and is expected to result in increased performance.

However, a diverse set of knowledge and skills may also present drawbacks to the contributive nature of entrepreneurial orientation when the environment becomes more dynamic. Previous research stresses the inherent tensions that are related to heterogeneity, in terms of task and process related conflict (Williams and O'Reilly, 1998). Although task conflict by increasing information exchange may add to the comprehensiveness of strategy formation, it increases time and resource demands of senior teams (Fredrickson and Mitchell, 1984; Eisenhardt and Bourgeois, 1988; Miller, Burke Glick, 1998). Heterogeneity therefore may become dysfunctional in dynamic environments as it decreases the ability of senior teams to achieve consensus in a timely manner (Priem, 1990). It slows down decision making speed in senior teams, making them lag behind in their response to environmental changes. This undermines the value creating potential of entrepreneurial orientation, as it reduces the ability of senior teams to reach consensus in time to benefit from the short-lived windows of opportunity inherent to dynamic environments (Hambrick, Cho and Chen, 1996). This leads to missed opportunities for potential value appropriation from entrepreneurial efforts, hampering firm performance.

The difficulties with achieving consensus, together with the requirement of timely decision making, opens the way for additional conflict at lower hierarchical levels of the firm. When senior teams fail to dissolve potential disagreements, but are forced to act in response to environmental changes, conflicting interests may continue to play a role in the implementation of new entrepreneurial initiatives. This leads to process conflict, i.e. disagreements about responsibilities and resource streams, at lower levels of the firm (Jehn, 1997). These types of disagreements are especially detrimental, as they breed distrust and decreased morale at lower levels of the firm (Jehn, Northcraft and Neale, 1999). It reduces cooperation and decreases momentum of entrepreneurial initiatives, leading to sub-optimal outcomes, such as delayed product or service introductions or even project failure. Hence, heterogeneity may present senior teams with some drawbacks in capturing the inherent value of the firm's entrepreneurial orientation, as they fail to reach consensus in time in the face of environmental changes.

H3: Environmental dynamism moderates the impact of senior team heterogeneity on the relationship between entrepreneurial orientation and firm performance in such a way that the positive effect of heterogeneity is expected to decrease when the level of environmental dynamism rises.

Senior team shared vision and environmental dynamism. Distributed attention across entrepreneurial initiatives and existing activities is expected to mount in dynamic environments. Environmental dynamism requires entrepreneurial champions to engage in more innovative, proactive and risky behavior that may strongly diverge from activities in place. Distributed attention harms the ability of senior teams to leverage the firm's entrepreneurial orientation as it complicates the requirement of timely decision making and prevents the building of synergistic integration.

The frequency of informational inputs requires senior team decision making to be immediate in order to benefit from the short-lived opportunity windows inherent to dynamic environments (Ensley, Pearson, and Amason, 2002). However, distributed attention rises accordingly with the need for more radical entrepreneurial initiatives in dynamic environments leading to potentially contradictory agendas across organizational functions. Senior team shared vision contributes to a collective understanding of how senior team members might resolve contradictory agendas in a timely manner and engage in productive behaviors towards overarching goals (Orton and Weick, 1990; Sinkula et al. 1997). It can override the adverse effects of divergent goals and perspectives among senior team members responsible for entrepreneurial and existing activities, preventing senior teams from devolving into fragmented structures (Jansen et al. 2008). Senior teams with a shared vision are therefore expected to have a higher capacity for action in the wake of environmental changes, enabling them to leverage their entrepreneurial orientation in a timely manner (Smith et al. 1994).

The facilitating role of shared vision such as providing support to entrepreneurial champions and achieving integration between entrepreneurial initiatives and existing activities is expected to be most beneficial in dynamic environments. Shared vision ameliorates conflicting interests and disagreement allowing synergistic integration across entrepreneurial initiatives and existing activities, e.g. it may function to enhance resource exchange and combination. As entrepreneurial initiatives are expected to be more divergent, and potentially display a higher demand for organizational resources in dynamic environments, efficient use of the resource pool becomes an essential part of leveraging the firm's entrepreneurial orientation. It increases the success rate of entrepreneurial initiatives and reduces time to market, satisfying the requirements of a dynamic environment (Teece, 1996).

However, a shared vision among senior team members may not always be as desirable. In stable environments, pressures for timely strategy formation are less sizable and environmental cues necessitating the focus on diverging entrepreneurial initiatives are largely absent. This may cause senior teams with a shared vision to primarily accommodate entrepreneurial initiatives located in the periphery of existing practices, leading to path dependent strategizing. The absence of environmental cues for accommodating entrepreneurial initiatives, combined with a shared vision of senior teams, may also cause senior executives to primarily exchange shared information that does not challenge or disturb the status quo (Van Ginkel and Van Knippenberg, 2008). Pooling of preferences and engaging in compromises that favor the status quo results in lower quality decisions and the discarding of potential valuable entrepreneurial initiatives, partly disabling the contributive nature of entrepreneurial orientation to firm performance.

H4: Environmental dynamism moderates the impact of senior team shared vision on the relationship between entrepreneurial orientation and firm performance in such a way that the positive effect of shared vision is expected to increase when the level of environmental dynamism rises.

METHODS

Research setting and data collection. For the purpose of this research a random sample of 9.000 firms was identified within the Netherlands from REACH database. The survey was conducted in two instances. The independent and moderating variables have been measured in the 2007 survey. The dependent variable of firm performance is measured in the 2008 survey and is verified using secondary data on performance from the REACH database of the Dutch chamber of commerce. The survey of 2007 resulted in

an overall response rate of 12.2 percent. The survey in 2008 amongst the 1102 firms that had responded to the survey in 2007, resulted in a response rate of 31.5 percent or 346 firms in total. Firms in the sample had a mean age of 35.2 years (s.d. 31.2 years), a mean size of 221 employees (s.d. 1161) and an average senior team size of 5.4 (s.d. 5.6). With respect to the different industries, the study includes responses from agricultural and natural resource firms (6%), semi-manufacturing firms (22%), utilities and construction firms (18%), trading firms (5%), transportation and communication firms (9%), professional service firms (26%), semi-public sector (3%) and manufacturing firms (8%). Firms in the 2008 sample had a similar ($p < 0.05$) mean age, mean size and average senior team size as the sample in 2007, moreover the industries within the 2008 sample were similarly dispersed as in the 2007 sample.

To test for non-response bias, potential differences between the respondents and non-respondents were investigated with respect to size in terms of number of employees, age of the firm and size of the senior team. No significant differences could be found at the ($p > 0.05$) level, which indicates that non-response is not a problem with respect to the abovementioned aspects. To tackle additional reliability issues related to single informant bias, data from a second senior team member was collected from each firm. This resulted in a response rate of 17.2 percent from a second respondent in the sample of 346 firms. The interrater agreement scores ranged from .82 to .96 suggesting high overall agreement and thus it is concluded that single informant bias is not a problem within the sample (James, Demaree and Wolf, 1993). In addition intra-class correlations were assessed which were significant at the .001 level, suggesting a strong level of interrater reliability (Jones et al. 1983). As a final step, several procedural methods to reduce the potential for common method bias were employed. First, the study is based on independent and dependent variables that were collected at different

points in time (Podsakoff et al. 2003). Second, the Harman's one factor test was performed on the items included in the regressions. Multiple factors were found to be present and the variance was evenly dispersed among the factors. Finally, CFA analysis was conducted in which each item was set to load on both their assigned construct as well as a latent common method variance factor. All item loadings were still significant on their appropriate construct after including the latent factor signalling that common method bias is not a serious problem within the current model (Podsakoff et al.2003). In addition, the fact that the three-way interactions are significant is also reassuring as the increased error variance resulting from common method bias would make detection highly unlikely (McClelland and Judd, 1993).

Measurement and validation of constructs. The constructs utilized in this study are scales comprised of multiple items that have been tested by means of various analyses.

Entrepreneurial orientation. entrepreneurial orientation is measured using a 9-item scale proposed by Covin and Slevin (1989). It measures proactiveness, risk taking and innovation with 3 items each. The average of the individual items is used as the entrepreneurial orientation of the firm. The 9-item scale of entrepreneurial orientation is reliable at $\alpha = .86$. Confirmatory factor analysis reveals that the 9 items of the construct load on one dimension, (NFI = .93, CFI = .95, RMSEA = .09). For further validation of the measure for entrepreneurial orientation, the correlations with objective indicators of a firms entrepreneurial posture, such as the average percentage of sales spent on R&D ($r = .25, p < .01$) and the number of new products introduced in the past three years ($r = .29, p < .01$) were assessed (Stam and Elfring, 2008). ***Senior team heterogeneity.*** The construct of senior team heterogeneity is measured with four items pertaining to task related heterogeneity within the senior team. Three items were adopted from Campion, Medsker and Higgs (1993) referring to differences in expertise,

differences in backgrounds and complementarity between competencies of team members. One item regarding the extent to which senior team members have different levels of experience was added. Previous research shows experience levels to be an important aspect of task related heterogeneity (Pelled, Eisenhardt and Xin, 1999). The four item scale is reliable ($\alpha = .79$) and loads on one dimension with factor loadings between .67 and .85. **Senior team shared vision.** Senior team shared vision is measured using a scale with five items and was adopted from Sinkula, Baker and Noordewier (1997). It refers to the extent to which senior team members have collective goals and shared aspirations as well as the level of commitment accompanying these goals and aspirations (Jansen et al. 2008). The five item scale is reliable with $\alpha = .88$ and loads on one dimension with factor loadings between .77 and .85. **Environmental dynamism.** The measure for environmental dynamism is based on previous research (Dill 1958; Jansen et al. 2006). It taps into the rate of change and the instability that firms experience in the external environment. The five item measure proved reliable $\alpha = .81$ and loads on one dimension with factor loadings between .71 and .81. **Firm Performance.** This study follows previous research for measuring firm performance, by calibrating several self-reported dimensions of firm performance and cross validating this measure with objective performance data (Wiklund and Shepherd, 2005). The measure of firm performance includes 4 items, respondents were asked to estimate performance of the last year on 4 aspects compared with competitors on five-point scales ranging from “much worse than our competitors” to “much better than our competitors”. They refer to revenue, profit, return on assets and increase of market share. The performance measure is verified with objective data from the REACH database 2008 resulting in a .26 ($p < .05$) correlation between the performance scale and the current ratio of the firm in 2008 for 72% of the firms included in the sample, i.e.

current assets divided by current liabilities. Furthermore a .30 ($p < .05$) correlation was found between the performance measure and firm profit of 2008 relative to firm profit in 2007 for 32% of the firms included in the sample. The 4-item scale proved reliable $\alpha = .97$. Furthermore the items load on one dimension with all factor loadings above .96.

Control variables. This study controls for a number of objective measures such as firm age, firm size, senior team size and industry type. *Firm age* is deemed to be important as older firms are expected to become more inert over time, hence a measure for firm age in terms of the natural logarithm for the number of years since the firm was founded is included in the model. *Firm size* is expected to play a role in the entrepreneurial process as large firms are expected to have more resources available to pursue entrepreneurship. However, due to institutional forces they might lack the flexibility to benefit from this advantage. *Senior team size* is included as team size has shown to be a critical determinant of team performance in previous studies. Finally, the study controls for industry effects by including *industry dummies*.

RESULTS

In table 1, depicted below, the descriptive statistics and the correlation matrix are presented. With respect to issues related with multicollinearity, the variance inflation factors (VIF) for each of the regression equations was calculated. The maximum VIF found was 3.35 which was assigned to one of the industry dummies, and the maximum VIF assigned to one of the main constructs was 1.66, both well below the cut-off point of 10 (Neter, Wasserman and Kutner, 1990).

TABLE 1
Descriptive Statistics and Correlation Matrix

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1)Entrepreneurial Orientation	4.20	1.07								
2)Senior team Heterogeneity	5.49	.92	.28 ***							
3)Senior team Shared Vision	5.48	.86	.30 ***	.30 ***						
4)Environmental Dynamism	4.40	1.27	.38 ***	.08	.05					
5)Firm Performance	4.93	.71	.37 ***	.28 ***	.41 ***	.20 ***				
6)Log (Firm Age)	1.46	.37	-.07	-.10	-.01	-.06	.04			
7)Log (Firm Size)	1.76	.48	.01	-.12 *	-.07	-.08	-.01	.15 **		
8)Senior team Size	5.43	5.00	.13 *	.02	.04	.04	-.01	.01	.06	

N=346 *** p<0.001 ** p< 0.01 * p< 0.05

Table 2 depicted on the following page, presents the results for the proposed research model. Model 1 presents the results with only the control variables included in the regression. Model 2 depicts the results with the senior team moderators. Model 3 includes the dynamic environment and depicts the results with respect to the proposed three-way interactions. Mean centering was applied before creating the interaction terms, to reduce the chance of multicollinearity (Aiken and West, 1991).

TABLE 2
Regression Model

	Model 1		Model 2		Model 3		Model 4	
	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)	B (s.e.)	Beta (sig)
Constant	4.90 (.25)		4.69 (.22)		4.64 (.21)		4.68 (.21)	
Industry1	.08 (.20)	.03	.16 (.17)	.06	.13 (.17)	.05	.11 (.17)	.04
Industry2	.01 (.16)	.01	.08 (.14)	.05	.11 (.14)	.07	.10 (.14)	.07
Industry3 (Reference Category)								
Industry4	-.06 (.17)	-.03	.10 (.14)	.05	.09 (.14)	.05	.06 (.14)	.03
Industry5	.05 (.22)	.02	.03 (.20)	.01	.04 (.19)	.01	-.02 (.19)	-.01
Industry6	.04 (.20)	.02	.09 (.17)	.04	.11 (.17)	.04	.03 (.17)	.01
Industry7	-.02 (.16)	-.01	.07 (.14)	.05	.08 (.14)	.05	.06 (.14)	.04
Industry8	-1.42 (.72)	-.11	-.95 (.63)	-.08	-.85 (.64)	-.07	-.75 (.64)	-.06
Industry9	.51 (.50)	.06	.24 (.45)	.03	.25 (.44)	.03	.11 (.45)	.01
Log (firm size)	.07 (.10)	.04	.12 (.08)	.07	.12 (.08)	.07	.11 (.08)	.07
Log (firm age)	-.03 (.12)	-.01	.05 (.10)	.03	.07 (.10)	.03	.05 (.10)	.02
Senior team size	.01 (.01)	.01	-.01 (.01)	-.05	-.01 (.01)	-.03	-.01 (.01)	-.03
Senior Team Heterogeneity			.11 (.04)	.14 **	.11 (.04)	.14 **	.12 (.04)	.16 **
Senior Team Shared Vision			.25 (.04)	.30 ***	.24 (.05)	.30 ***	.21 (.05)	.26 ***
Entrepreneurial Orientation			.13 (.04)	.21 ***	.15 (.04)	.23 ***	.16 (.04)	.25 ***
Environmental Dynamism			.05 (.03)	.09	.04 (.03)	.08	.04 (.03)	.06
Entrepreneurial Orientation * Senior team Heterogeneity					.12 (.04)	.19 ***	.10 (.04)	.15 **
Entrepreneurial Orientation * Senior team Shared Vision					-.02 (.04)	-.04	-.01 (.04)	-.01
Entrepreneurial Orientation * Environmental Dynamism							.01 (.03)	.03
Environmental Dynamism * Senior Team Heterogeneity							-.02 (.03)	-.02
Environmental Dynamism * Senior Team Shared Vision							.03 (.04)	.05
Entrepreneurial Orientation * Senior Team Heterogeneity * Environmental Dynamism							-.06 (.03)	-.14 *
Entrepreneurial Orientation * Senior Team Shared Vision * Environmental Dynamism							.08 (.03)	.17 **
R-square	.02		.27		.30		.33	
R-Square adjusted	.01		.23		.26		.28	

N=346 *** p<0.001 ** p< 0.01 * p< 0.05

Model 1 shows that none of the control variables play a significant role. Model 2 shows that senior team heterogeneity has a positive moderating effect on the relationship between entrepreneurial orientation and firm performance, providing support for hypothesis 1 ($\beta = .19, p < .001$). Model 2 further shows no support for hypothesis 2, hence senior team shared vision does not impact the relationship between entrepreneurial orientation and firm performance. Model 3 describes the three-way interactions including environmental dynamism into the model. A negative interaction for heterogeneity is found ($\beta = -.14, p < .05$), signaling the existence of drawbacks of senior team heterogeneity for leveraging the firm's entrepreneurial orientation in dynamic environments. In order to shed more light on the issue of the three-way interactions the interaction effects on performance are plotted for low and high levels of heterogeneity, entrepreneurial orientation and dynamism. For this purpose the mean value minus one standard deviation for low levels and the mean plus one standard deviation for high levels is used (Aiken and West, 1991). First the differences between the interactions of the senior team moderators and entrepreneurial orientation in stable vs. dynamic environmental conditions are assessed (I and II). Afterwards the differences of the slopes of high and low levels of each of the senior team moderators are compared across stable and dynamic environments (III and IV).

FIGURE 2

Interaction plot of senior team heterogeneity and entrepreneurial orientation in stable and dynamic environments

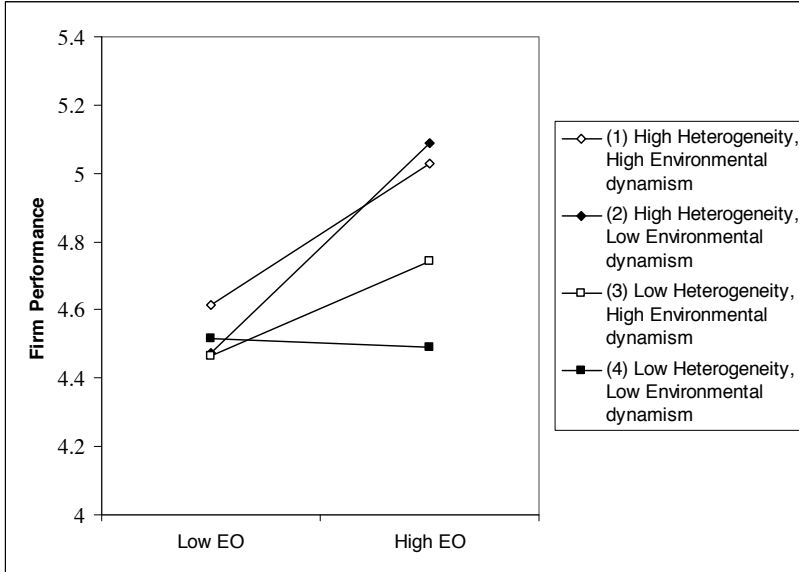


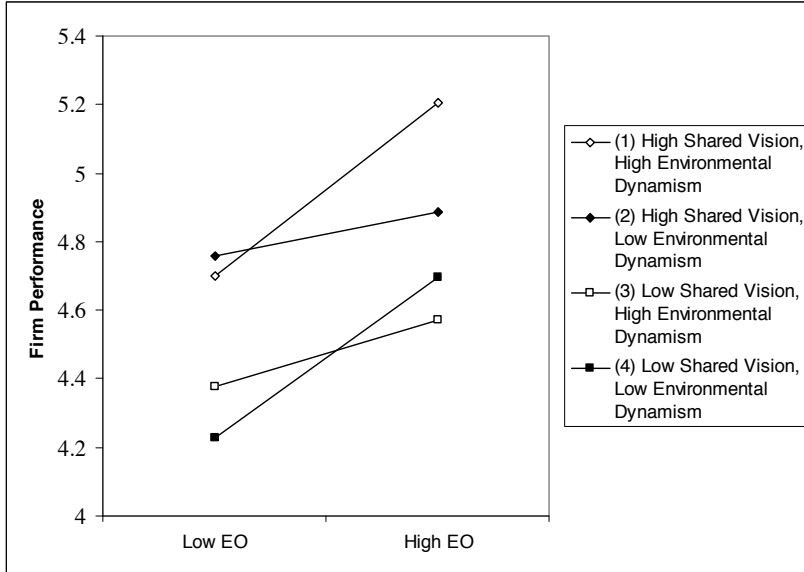
Figure 2 depicted above, show the interactions of senior team heterogeneity and entrepreneurial orientation in stable and dynamic environments. First, senior team heterogeneity has a positive interaction with entrepreneurial orientation in relatively stable environments (line 2 and 4), signaling the beneficial effect of senior team heterogeneity on the relationship between entrepreneurial orientation and performance. This is also substantiated when assessed with simple slope analysis ($p < .01$). Second, the positive interaction between senior team heterogeneity and entrepreneurial orientation is dampened in dynamic environments (line 1 and 3) when compared to the plot in stable environments. This also follows from the results of simple slope analysis as the difference between the two lines representing the impact of high

and low senior team heterogeneity on the relationship between entrepreneurial orientation and performance in dynamic environments is no longer significant ($p > .10$). Third, although the interaction is negative, i.e. the positive impact of high heterogeneity is reduced in dynamic environments, there is no significant difference between the slopes depicting high heterogeneity in stable and dynamic environments (line 1 and 2, $p > .10$). Fourth, a positive interaction exists between low heterogeneity and entrepreneurial orientation when comparing stable and dynamic environments. The difference between the lines is significant at the ($p < .10$) level providing weak evidence that low heterogeneity has a more positive impact on the on the relationship between entrepreneurial orientation and performance in dynamic environments than in stable environments, (line 3 and 4).

Together, this provides strong evidence that senior team heterogeneity has a significant positive interaction with entrepreneurial orientation in stable environments, while this interaction is substantially reduced in dynamic environments. Senior team heterogeneity is therefore an important characteristic for senior teams seeking to leverage their entrepreneurial orientation into increased performance in stable environments. It is important to realize that the interaction is absent in dynamic environments as this signals that the non-difference between the slopes of high heterogeneity and entrepreneurial orientation across environments (III), is caused by the single moderating effect of heterogeneity, rather than that of the three-way interaction with environmental dynamism. Furthermore, weak evidence ($p < .10$) suggests that low levels of senior team heterogeneity add to the value creating potential of entrepreneurial orientation in dynamic environments as opposed to stable environments. Hence, hypothesis 3 is supported.

FIGURE 3

Interaction plot of senior team shared vision and entrepreneurial orientation in stable and dynamic environments



Model 3 further includes the three-way interaction of shared vision, environmental dynamism and entrepreneurial orientation. We find a positive interaction ($\beta = .18, p < .01$) signaling the benefits of senior team shared vision for leveraging the firm's entrepreneurial orientation in dynamic environments. Figure 3 depicted above, show the interactions of senior team shared vision and entrepreneurial orientation in stable and dynamic environments. First, senior team shared vision has a negative interaction with entrepreneurial orientation in relatively stable environments (line 2 and 4), signaling the negative effect of senior team shared vision on the relationship between entrepreneurial orientation and performance, the difference between the slopes is significant the ($p < .10$) level. However, it is important to realize that the direct effect of senior team shared vision on firm performance elevates the slope in such a way that senior teams with high shared vision operating in stable environments are able to

realize higher firm performance than senior teams with low shared vision. Second, we find a positive interaction between shared vision and entrepreneurial orientation in dynamic environments (line 1 and 3). The interaction of shared vision and entrepreneurial orientation is positive and the difference between the slopes is significant at the ($p < .10$) level, increasing the positive impact on firm performance. Third, we find a positive interaction between high shared vision and entrepreneurial orientation across environmental conditions, the difference between the slopes is significant at the ($p < .05$) level (line 1 and 2). This means that the positive impact of high senior team shared vision on the relationship between entrepreneurial orientation and performance is significantly higher in dynamic environments than in stable environments. Fourth, we find a positive interaction, between low shared vision and entrepreneurial orientation when comparing dynamic and stable environments (line 3 and 4). However, the difference between the slopes is not significant ($p > .10$). Together, this provides strong evidence that the positive moderating effect of shared vision is enhanced in dynamic environments as opposed to stable environments. We therefore conclude that hypothesis 4 is supported.

Post hoc analysis. Considering that the three-way interactions share two of the same constructs, we decided to test for the results of the three-way interactions separately, i.e. one model for heterogeneity and one for shared vision. In this way we are able to rule out essential collinearity. The results are similar to the full model and no significant differences were found.

DISCUSSION AND CONCLUSION

Strategic scholars strive to understand the contextual conditions that enable senior teams to leverage EO, leading to increased firm performance. From an attention based perspective, we develop a model regarding the impact of senior team attributes and posit that senior teams play an important role in coordinating the strategic processes of entrepreneurial orientation (Covin, Green and Slevin, 2006). Although the existing relationship between entrepreneurial orientation and firm performance is inherently positive (Rauch et al, 2009), senior teams are able to add significantly to the impact of entrepreneurial orientation on firm performance. We have examined the impact of senior team heterogeneity and senior team shared vision and find strong evidence with respect to the moderating role of senior team heterogeneity. In addition, we find that the impact of senior teams on the relationship between entrepreneurial orientation and performance is contingent upon environmental dynamism.

Theoretical implications. Our results confirm the positive impact of entrepreneurial orientation on firm performance. Firm performance is also positively influenced by senior team heterogeneity and shared vision, however solely investigating these main effects provides an incomplete understanding of the relationship between entrepreneurial orientation and performance. Whereas a contingency model informs us of the beneficial impact of senior team heterogeneity on the relationship between entrepreneurial orientation and firm performance, we only fully appreciate the complex interrelation between our senior team attributes and entrepreneurial orientation when considering environmental dynamism. An interesting finding of our study is that while environmental dynamism does not to directly influence the relation between entrepreneurial orientation and firm performance, it does impact the functioning of the senior team attributes in realizing the inherent value of entrepreneurial orientation.

This represents a possible extension of studies investigating the impact of environmental conditions on the relationship between entrepreneurial orientation and performance (Miles, Covin and Heeley, 2000). This study signals that combining distinct contingencies, when investigating moderators of the relationship between entrepreneurial orientation and performance, may provide more fine-grained results. While more limited contingency models may be instrumental in establishing initial understanding, combining relevant aspects originating from different levels of analysis, e.g. environment, firm, senior team, adds significantly to the ongoing debate regarding entrepreneurial orientation and firm performance (Dess, Lumpkin and Covin, 1997; Wiklund and Shepherd, 2005).

Senior team heterogeneity is found to positively affect the relationship between entrepreneurial orientation and firm performance. The broad knowledge base, increased information elaboration and combinative capabilities, aid in enhancing the attention scope of senior teams. This allows them to capture the potential value of entrepreneurial orientation by facilitating selection processes for devising a profitable entrepreneurial portfolio. This study contributes to previous literature that theorized for the positive effect of senior team heterogeneity on assessing viability of entrepreneurial initiatives (Cohen and Levinthal, 1990) as well as the fit of the entrepreneurial portfolio with activities in place (Kogut and Zander, 1992). Senior team heterogeneity is often viewed as a double edged sword and most notably when it concerns salient features, such as age, gender and race. The fine line between the beneficial and potential harmful impact of senior team heterogeneity has been extensively researched and results have remained contradictory (Williams and O'Reilly, 1998). This study suggests that irregularities found in heterogeneity research may be attributed to lack of attention for context.

Notwithstanding the positive impact of senior team heterogeneity on the value creating potential of entrepreneurial orientation, it is found that this effect is mainly indigenous to stable environments. Results show no significant interaction between heterogeneity and entrepreneurial orientation in dynamic environments and provide weak evidence that low senior team heterogeneity brings the highest performance benefits of entrepreneurial orientation in dynamic environments when compared to stable environments. Environmental dynamism requires senior team responsiveness, and heterogeneous senior teams are characterized more by elaborate than compact decision making processes. Whereas task related heterogeneity is primarily related to increased performance, it may lead to task and process conflict, which is linked to decreased responsiveness (Jehn, 1997). The findings add to the understanding of senior team heterogeneity as well as why and how it enables entrepreneurial orientation to add to performance. Although elaborate decision making processes positively steer entrepreneurial activities in relatively stable environments, they become less useful when the level of environmental dynamism rises (Frederickson and Mitchell, 1984; McMullen and Shepherd, 2006).

Interestingly, senior team shared vision, is shown not to moderate the relationship between entrepreneurial orientation and firm performance. Although shared vision has been theorized to safeguard initial development of entrepreneurial initiatives and integrate and streamline processes of resource allocation and exchange (Tsai and Ghoshal, 1998), it fails to add to the value creating potential of entrepreneurial orientation. A potential explanation for the absence of the positive effect of shared vision may be that the distinct advantages brought by senior team shared vision only prove indispensable in specific contexts that heighten distributed attention across organizational functions within the firm. Legitimizing initial development of

entrepreneurial initiatives becomes increasingly important when they venture considerably beyond the existing scope of the firm. Similarly, resource demands of entrepreneurial initiatives that are located within the periphery of existing activities may not be as pervasive as theorized and do not require senior teams to propagate the benefits of resource exchange and combination. It is only when the pervasiveness of environmental requirements increases that these patterns are circumvented. The rise of environmental dynamism is expected to lead to a more divergent entrepreneurial portfolio, especially at the fuzzy front end, increasing the need for senior team to provide nascent entrepreneurial efforts with sufficient legitimacy. Resource demands may also rise accordingly, amplifying the benefits of resource allocation and exchange for leveraging the firm's entrepreneurial orientation.

Moreover, the impact of shared vision on the responsiveness of senior teams enhances their ability to cope with changing circumstances in a timely manner. Senior team shared vision leads to a shared commitment facilitating timely and consensual strategy formation as required in dynamic environments (Smith et al. 1994; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998). The results partly underline findings of previous studies regarding shared vision. Whereas most studies advocate the beneficial impact of shared vision (Jansen et al. 2008) results show that shared vision may only contribute to the value creating potential of entrepreneurial orientation when operating in a dynamic environment.

Limitations and future research. This study provides for a first step into the investigation of senior team moderators of the relationship between entrepreneurial orientation and firm performance. This study is not without its limitations, hence suggests the need for future research. First, although this study is based on two datasets measuring the independent and dependent construct in two separate instances over a

two year period, it may be interesting to study the role of senior teams over a longer period in time. This would enable us to assess whether temporal changes in senior team heterogeneity, shared vision and environmental dynamism impact the relationship between entrepreneurial orientation and firm performance. An extended time frame may be especially interesting when investigating the impact of senior team shared vision, as it may provide additional insights into the potential for path dependency. As senior team shared vision puts an emphasis on common goals, diverging initiatives may not be supported by senior teams, inflicting path dependency in the long term. It may also be interesting to include the notion of 'content' into the conceptualization of senior team vision. In this way future studies may control for quality aspects related to vision and assess more comprehensively whether the moderating effect of shared vision in relatively stable environments indeed remains absent. Interesting avenues in this respect are, the longevity of vision, i.e. short term vs. long term and coherence of vision, i.e. with a focus on complementarity vs. fragmented approach. This study further indicates that when investigating senior team shared vision in future studies, researchers should account for environmental pressures, such as the level of dynamism or competitiveness.

Furthermore, this study opens various avenues for related research. Future research might further investigate the functioning of heterogeneity by examining various levels within the firm. As the workforce has become increasingly diverse in recent years it may be fruitful to investigate the impact of heterogeneity at lower levels, such as the middle management level. This may further function to delve more deeply in the enabling impact of heterogeneity on determining the attention focus of the firm as a whole. Middle managers are deemed to be have considerable responsibilities while still being fully embedded in operational processes. Through their detailed case-specific

knowledge and expertise they are pre-eminently equipped to seek out and select viable entrepreneurial opportunities within their respective units and strengthen the firm's entrepreneurial orientation in dialogue with top management (Wooldridge, Schmid and Floyd, 2010).

Conclusion. This study underlines the important role of senior teams in navigating change. Senior team attributes such as heterogeneity and shared vision enable the selection process of entrepreneurial initiatives, coordination of the entrepreneurial portfolio and the creation of commitment and integration with respect to the development of entrepreneurial initiatives. In this way, senior teams guide the entrepreneurial orientation, and through active involvement improve firm performance. Overall, this study signals the important role of senior teams and calls for further attention to senior team attributes as potential moderators of the relationship between entrepreneurial orientation and firm performance.

CHAPTER 4: Entrepreneurial orientation and performance; The mediating role of networks and managerial position

ABSTRACT

This paper investigates the link between the entrepreneurial orientation of middle managers and the performance of their designated unit. Entrepreneurial orientation at firm level represents a firm-wide posture that allows entrepreneurial initiatives to blossom due to the encompassing disposition towards entrepreneurship, support systems in place and legitimacy associated with opting for entrepreneurial business solutions. At the middle manager level and subsequently their designated unit, entrepreneurial orientation may be high, however firm-wide support systems are less defined and the rationale for pursuing entrepreneurial initiatives more ambiguous. We posit that strong network ties mediate the relationship between entrepreneurial orientation and performance as they facilitate reciprocal knowledge exchange and bring trust and support to the task situation of the manager. In addition, we investigate a model of moderated mediation, in which managerial hierarchical level influences our proposed mediating effect. In fact we find that the mediating role of strong ties, between entrepreneurial orientation and subsequent performance, exists only for relatively higher-tier managers.

Key words: Entrepreneurial Orientation, strong ties, managerial position, performance.

INTRODUCTION

The role of entrepreneurial orientation in predicting performance makes it an important research domain in strategic management and corporate entrepreneurship (Lumpkin & Dess, 1996; Covin, Green, & Slevin, 2006; Rauch, Wiklund, Lumpkin, & Frese, 2009).. Entrepreneurial orientation is conceptualized as the disposition towards entrepreneurial processes and describes the strategic posture of managers in terms of innovativeness, pro-activeness, and risk taking behavior (Miller, 1983; Covin and Slevin (1989). Most studies find that entrepreneurial orientation enhances performance, but highlight that in some cases this effect is mediated by the enabling role of learning orientations (Wang, 2008), strategic decision making (Moreno and Casillas, 2008), information utilization (Keh, Nguyen and Ng, 2007) and self efficacy (Zhao, Seibert and Hills, 2005). In this study we aim to add to the understanding of contextual conditions that facilitate a more fluid conversion from entrepreneurial orientation into subsequent performance.

Entrepreneurial orientation has primarily been conceptualized as a macro level construct, considering the innovativeness, proactiveness and risk-taking of the firm as perceived by its 'senior-most manager' (Covin and Slevin, 1989: 78). Recently, Wales, Monsen and McKelvie (2011) noted that the pervasiveness of entrepreneurial orientation may not be as universal as previously assumed, i.e. relatively constant across organizational levels and functional areas. It is therefore interesting to investigate how the entrepreneurial orientation at different levels of the firm adds to local performance and how local contextual conditions influence that process. In an effort to add to the theoretical grounding of the entrepreneurial orientation construct, this study adopts a different perspective and investigates the entrepreneurial orientation of middle managers responsible for designated units within the firm.

Evidence suggests, that seedlings of entrepreneurial efforts usually reside at the middle management level (Floyd & Wooldridge, 1997; Hornsby, Kuratko, Shepherd, & Bott, 2008). Middle managers are deemed to be have considerable responsibilities while still being fully embedded in operational processes. Through their detailed case-specific knowledge and expertise they are pre-eminently equipped to seek out, select and pursue viable entrepreneurial opportunities within their respective units, leading to increased performance. Most studies on the impact of middle managers in entrepreneurial processes have been conceptual of nature (Wooldridge, Smith and Floyd, 2006) hence the need for empirical validation is clearly present. Adopting a different level of analysis, investigating the entrepreneurial orientation of middle managers offers the right detail granularity for increasing our understanding of their tasks in entrepreneurial processes.

However, prior research has extensively stressed the importance of contingencies impacting the performance benefits of entrepreneurial orientation (Wiklund and Shepherd, 2003; Stam and Elfring, 2008). At middle management level, the most pervasive element in appropriating value from entrepreneurial orientation, would comprise the ability to source for and assess viability of new entrepreneurial initiatives as well as to generate sufficient support, legitimacy and political willingness for selected entrepreneurial efforts. The decisions and actions of middle managers are “embedded” in and shaped by a system of social relations (Granovetter, 1985) that together determine how receptive, supportive and enabling their environment will be towards entrepreneurial initiatives. Investigating middle managers social networks would therefore comprise an interesting avenue and potential mediating condition for appropriating additional value from their entrepreneurial orientation. Moreover it is interesting to assess how the entrepreneurial orientation of middle managers may be instrumental in building self-reinforcing relationships that aid in realizing the

entrepreneurial potential of middle managers (Hansen, 1995, Mehra, Kilduff and Brass, 2001). The origins of social networks comprise another interesting yet underresearched area of management literature that deserves further attention in this paper.

Social networks are shown to contribute to middle managers' strategic influence (Floyd & Wooldridge, 1997), help them to leverage organizational resources for innovation (Brass, Galaskiewicz, Greve and Tsai 2004; Kelley, Peters, & O'Connor, 2009), increase new venture performance (Stam & Elfring, 2008), and affect reciprocal knowledge transfer (Hansen, 1999). While organizational literature recognizes the importance of social networks, there is much debate regarding the underlying processes through which social networks develop, benefit focal actors and consequently, shape their economic action. Contrary to the network structure argument, Granovetter (1973) argues that one should look at the quality of relationships between people in order to understand the benefits of social networks. It is not about "whom one knows", but about "how well one knows them", adhering to the quality of the relationship between two people (Moran, 2005: 1130). High relationship quality, or a strong tie, is reflected by emotional closeness between two persons (Marsden & Campbel, 1984). Strong ties enable complex knowledge to move between people (Hansen, 1999), ease the act of asking and offering support (Granovetter 1983), enable cooperation (Granovetter, 1985), and engender trust (Krackhardt, 1990). The latter characteristics represent enabling conditions for entrepreneurial orientation to add to performance, strong ties would therefore be expected to play a mediating role between entrepreneurial orientation and subsequent performance.

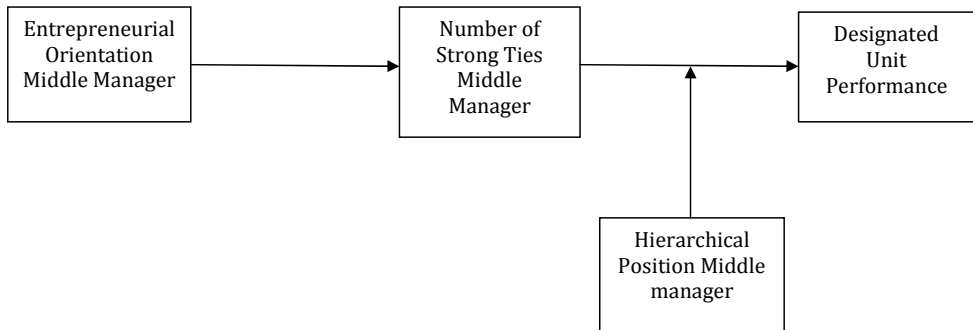
In addition to our focus on strong ties of middle managers, we assess managerial position as a contingency factor. The middle management level in our case specific context consists of several layers, stretching from regional to divisional, department and

account managers. Middle managers at relatively higher-tier positions are responsible for a relatively more sizable part of the organization, with more direct subordinates and accompanying coordination problems. Simultaneously, they are expected to be involved in projects with greater impact increasing the need for support, legitimacy and political willingness (Burt, 1997). We therefore opt to assess a model of moderated mediation and assess whether the mediating effect of strong ties is contingent upon managerial position.

Our conceptual model, presented in Figure 1, depicts the hypothesized relationships. Following the literature review and hypothesis development, the empirical findings using lagged survey data of 282 middle managers from a company operating at the intersection of hardware, software and IT consulting are presented. Finally, we conclude with a discussion of our results, potential implications and suggestions for future research.

FIGURE 1

Conceptual Model



LITERATURE REVIEW

Entrepreneurial orientation has previously been conceptualized as the extent to which senior managers and/ the top management team of organizations are innovative, proactive, as well as risk takers (Miller, 1983). Most studies have assumed this measure to function as a proxy for firm level entrepreneurial orientation (Rauch et al. 2009). *Innovativeness* refers to the inclination to pursue new products and services (Zahra and Covin, 1995; Lumpkin and Dess, 2001). *Proactiveness* entails the tendency to take the initiative and act before potential competitors. (Covin, Green and Slevin, 2006). *Risk taking* refers to the propensity to invest in ventures with an uncertain outcome (Lumpkin and Dess, 1996). In this study we depart from the organizational level of analysis and assess entrepreneurial orientation at the level of middle managers. Middle managers enjoy a considerable amount of responsibility and autonomy (Floyd and Lane,

2000) are assumed to fundamentally influence entrepreneurial activities (Kuratko, Ireland, Covin and Hornsby, 2005; Hornsby, Kuratko, Shepherd and Bott, 2008) and are crucial for organizational performance (Wooldridge and Floyd, 1990).

So what are these roles that make middle managers indispensable to the entrepreneurial processes of organizations? First they assess, justify and define new entrepreneurial pathways, both up and down stream, in dialogue with higher management and employees. Second, they relax regulations to get new projects started, they buy time and provide a safe haven for experimentation and manage the process of resource allocation for entrepreneurial development (Wooldridge and Floyd, 1997). While middle managers are rightly considered pivotal players in the entrepreneurial process they are constrained as well as supported by their social embeddedness. Investigating how social networks may aid in allowing the entrepreneurial orientation of middle managers to flourish, opens an interesting but still developing avenue in entrepreneurship research (Pappas & Wooldridge, 2007; Stam & Elfring, 2008).

Relational embeddedness or tie strength concerns the quality of the relationship between two people (Nahapiet & Ghoshal, 1998; Moran, 2005). In his seminal work "The strength of weak ties", Granovetter (1973) defines one characteristic of ties, the strength, as a matter of the amount of time, emotional energy, and intimacy two actors invest in their relationship. Strong ties are communication channels used for sharing complex knowledge (Hansen, 1999; Reagans & McEvily, 2003) and allow for valuable discussion over problems and ideas, through in-depth validation and by clarifying reformulations (Cross & Sproull, 2004). Strong ties create trust among peers (Krackhardt, 1990), increase mutual understanding, credibility of expertise and the perceived value of cooperation through reciprocal exchange relationships. In this study we contend that the need for the enabling effects of strong ties fluctuates across

hierarchical positions. Previous research has shown managers at different hierarchical levels in the organization to fulfill distinct roles in entrepreneurial processes (Bartlett and Ghoshal, 1993; Floyd and Lane, 2000). These roles each require distinct support mechanisms and may impact the facilitating role of strong ties for leveraging the entrepreneurial orientation of middle managers.

Previous research has primarily linked middle management involvement in entrepreneurial processes to organizational performance (Wooldridge and Floyd, 1990; Floyd and Wooldridge, 1997). Although intuitively correct, this approach may inadvertently disregard the direct link that exists between the middle manager and their designated unit. This may influence results as it is difficult to assess the weight of each middle manager in establishing the calibrated measure of performance. Adopting a measure of unit performance to assess the impact of managerial involvement, commonly found in e.g. leadership research (Howell and Aviolo, 1993; Bass, Aviolo, Jung and Berson, 2003), allows us to retain the detailed granularity that links the entrepreneurial orientation of managers with the performance of their designated unit.

The mediating role of strong ties between entrepreneurial orientation and performance. The link between entrepreneurial orientation and performance has been extensively researched in previous studies, however mostly at firm level, as generally referring to the shared disposition among managers to entrepreneurial initiatives (Lumpkin and Dess, 1996). Entrepreneurial orientation has been characterized as a major source of competitive advantage and increased financial performance of established organizations as it enables them to pioneer the creation and introduction of new products and services (Zahra and Covin, 1995; Rauch et al. 2010). For middle

managers, entrepreneurial orientation plays a similar role, as it enables them to start new and promising business avenues within the confines of their unit, or in cooperation with other units. Moreover, the detailed case-specific knowledge of middle managers and their local expertise within their respective business unit is instrumental for gauging the potential value-added of entrepreneurial initiatives (Floyd & Wooldridge, 1997). It further functions to synthesize and apply current and newly acquired knowledge and realize additional synergies between emerging entrepreneurial initiatives and existing activities. Middle managers are therefore able to establish new entrepreneurial pathways that fit best the local requirements of their business unit. However, when researching entrepreneurial orientation at a lower level of analysis different dynamics should be considered. Entrepreneurial orientation at firm level represents a firm-wide posture that allows entrepreneurial initiatives to blossom due to the encompassing disposition towards entrepreneurship, support systems in place and legitimacy associated with opting for entrepreneurial business solutions. At unit level, entrepreneurial orientation may be high, however support systems are less defined and the rationale for pursuing entrepreneurial initiatives more ambiguous (Hornsby, Kuratko, Shepherd, and Bott, 2008). Middle managers therefore have to constantly negotiate the room to maneuver in realizing the inherent value encapsulated in their entrepreneurial orientation.

Given the requirements for middle managers to leverage their entrepreneurial orientation, we contend strong ties to play an important mediating role. First, we expect the entrepreneurial orientation of managers to facilitate the creation of a network with strong ties. The explorative and frontline approach of entrepreneurially oriented managers, always operating at the edge of their competences, will be one of seeking out relevant individuals in order to fuel their quest for new and challenging entrepreneurial

opportunities (Akbar, 2003; Thompson, 2005). Building ties that allow them to exchange complex as well as sensitive information, draw on support in terms of e.g. resources, and build legitimacy for entrepreneurial initiatives as well as political willingness among organizational actors is an essential part of the activities of entrepreneurially oriented managers. Whereas building and maintaining strong ties is often considered, time consuming and costly it provides the entrepreneurial middle manager with indispensable advantages for realizing their entrepreneurial orientation.

Established strong ties influence decision making on innovative, pro-active or risky business opportunities. They provide a comfort zone for the focal manager and allow collective sense-making, enabling swift decision making on emerging entrepreneurial initiatives (March & Simon, 1958). Strong ties enable managers to timely and comprehensively source for relevant knowledge regarding entrepreneurial initiatives increasing their task performance (Hargadon, 2002). Strong ties are characterized by a high level of trust (Levin & Cross, 2004; Currall & Judge, 1995), which has a considerable impact on relationship dynamics. Trust reassures individuals, providing a safe haven to discuss sensitive issues, such as new and untested ideas, that could potentially damage their reputation (Burt & Knez, 1996). It is essential for new discovery, experimentation and sharing of initial results, facilitating the delicate first steps in nascent entrepreneurial initiatives. In addition, trust offers middle managers a way to access and use complex knowledge of close contacts (Hansen, 2002; Inkpen and Tsang, 2005). Such knowledge is usually not accessible through formal channels due to high transaction costs and/or lack of absorptive capacity between unrelated individuals. Hence, strong ties allow middle managers to access and make sense of the diverse

relevant knowledge strands necessary to propel their entrepreneurial orientation and increase performance (Levin and Cross 2004).

In addition, strong ties increase task performance of managers as it allows them to generate timely support for their entrepreneurial activities. Entrepreneurial managers put themselves in risky situations by pursuing opportunities, regardless of the resources they control, in order to create value (Gartner, 1990; Stevenson & Jarillo, 1990). Strong ties can help to bridge the gap between resources controlled and resource needs associated with new projects, experimentation or search. Dedicated support, in terms of e.g. resources or legitimacy, usually supplied by close contacts, becomes especially important when entrepreneurial efforts become more radical and farther removed from core activities (Nohria, 1992; Krackhardt, 1992; Moran, 2005). The uncertain and fragmented nature of entrepreneurial initiatives at the fuzzy front end, make for a lack of rational clues for continuing with selected entrepreneurial initiatives, especially when initial investments are sizable. Entrepreneurial champions need to perceive availability of resources in line with the willingness of strong ties to commit to entrepreneurial projects (Amason, Shrader and Thompson, 2006).

Together strong ties, allow managers to assess, justify and define entrepreneurial pathways in a comprehensive manner, increasing its potential to add to their units performance (Cross and Cummings, 2004).

Hypothesis 1: The relationship between the entrepreneurial orientation of middle managers and their units' performance is mediated by their number of strong network ties.

Moderated mediation, the role of managerial position. Middle managers in relatively higher tier positions, responsible for entire divisions and regions rather than functional departments and focused accounts, are generally more time constrained as coordination as well as the sourcing of new ideas and perspectives becomes more difficult and time consuming. Strong ties facilitate the process of sourcing, recognizing potential and evaluating new entrepreneurial initiatives, as close contacts are less inhibited to informally share potentially disruptive ideas. Simultaneously, middle managers in relatively higher hierarchical positions within the firm are expected to champion entrepreneurial projects with greater impact, both physically, as well as on a social and political level (Wooldridge and Floyd, 1990). The indispensable role of exchanging vital information and sourcing for the necessary support becomes ever more pervasive when the impact of entrepreneurial efforts rises (Brass, Galaskiewicz, Greve and Tsai, 2004). Potentially disruptive and ambiguous entrepreneurial efforts also increase the need for captive information exchange, as the entire process becomes more politically sensitive. Trust between focal actors becomes increasingly important as it ensures vital knowledge exchange to occur without hesitation, distortion, omission or exaggeration of outcomes (Hansen, 1999). Moreover, the need for combining distinct strands of knowledge in high impact entrepreneurial efforts that potentially stretch across functional departments, commands fluid knowledge transfer in terms of accessibility, absorptive capacity, activation of knowledge and learning (Kogut and Zander, 1992; Akbar, 2003).

In addition, sourcing of relevant information regarding the interests and beliefs existing among employees allows middle managers to translate emerging entrepreneurial avenues into a compelling proposition for those individuals affected by it. Through recognizing, evaluating and accounting for the distinct and potentially

contradictory beliefs and interest of employees, disruptive elements within entrepreneurial pathways are subdued and encapsulated within a common vision for entrepreneurship (Jansen, George, Van den Bosch and Volberda, 2008). Alleviating resistance towards entrepreneurial efforts is essential for allowing nascent entrepreneurial initiatives to reach their full potential and becomes especially important when entrepreneurial efforts affect a large part of the population of the firm and risk of conflict becomes higher (Tsai and Goshal, 1998).

Projects with a greater impact also command commitment and dedication in terms of support, as they are likely to be characterized by a higher demand for physical resources and sunk costs may be expected to accumulate rapidly when experiencing initial dissatisfactory results. Relatively higher-tier middle managers with the strong network in place to bridge potential setbacks may be more successful in championing ambiguous but high potential entrepreneurial initiatives. Similarly, as projects with a greater impact are expected to be more disruptive of nature in relation to activities in place, peers may be more reluctant to extend support and legitimize diverging initiatives. Entrepreneurially oriented middle managers with a well established network of strong ties may experience less difficulty in persuading potential allies and contributors to aid in facilitating the entrepreneurial process.

Together, the facilitating role of strong ties is expected to be most pervasive in entrepreneurial ventures championed by relatively higher-tier managers as the impact of their entrepreneurial efforts puts higher strain on resource demands, knowledge exchange and the management of contradictions existing between entrepreneurial avenues and existing activities.

Hypothesis 2: The mediating impact of number of strong ties on the relationship between managers' entrepreneurial orientation and their unit performance is stronger for relatively higher-tier managers (than for lower-tier managers).

METHODS

Site and Participants. Data was collected within a large international company operating at the intersection of hardware, software and IT consulting. The study focused on their European branch, consisting of 7 countries, and data was collected from 760 middle managers. Response rate was acceptable with 282 middle managers responding to the survey or 37% of the population. The survey was web-based and companioned by a recommendation letter of the European director of innovation management. The independent and social network measures were collected with the survey, the managerial position and performance measure was taken from the performance matrix of the designated company. Respondents had worked for average 18 years in the company (s.d. = 9.78). Eighty-eight percent were man.

Measurement and validation of constructs. The constructs utilized in this study are scales comprised of multiple items that have been tested by means of various analyses.

Entrepreneurial orientation. We use a nine item scale for measuring entrepreneurial orientation proposed by Covin and Slevin (1989). It measures proactiveness, risk taking and innovation with 3 items each. The average of the individual items is used as the entrepreneurial orientation of middle managers in driving the strategic posture of their respective unit. We had to perform some alterations to the existing scale as it refers to the general disposition of managers in a single firm and we are interested in the entrepreneurial orientation of middle managers and the manner in which they drive their designated unit to be entrepreneurial. The 9-

item scale of entrepreneurial orientation is reliable at $\alpha = .89$. Confirmatory factor analysis reveals that the 9 items of the construct load on one dimension, (NFI = .91, CFI = .92, RMSEA = .07). For further validation of our measure for entrepreneurial orientation we investigated the correlation with an objective indicator for the entrepreneurial posture of the unit of the manager, i.e. the number of new products introduced in the past three years ($r = .31, p < .01$) (Stam and Elfring, 2008).

Number of strong ties. The variable "strong ties" was a count of all strong ties in a respondents network. Consistent with Burt (1992) we used an ego-centric social network survey instrument to derive a list of people with whom the respondent had ties. The name-generator questions asked respondents to identify persons "with whom you most often discuss new work related ideas". After respondents had listed all person they were asked to rate their relationship strength with each of these persons. To measure tie strength we followed Marsden and Campbell's (1984) recommendation and asked each middle manager "How close are you with X?" with possible responses of "Acquaintance", "Good friends", and "Very close friend". We coded a tie as strong if respondents indicated that alter was a very close friend.

Middle-Manager's position. The context of our research, i.e. the European branch of a global firm operating at the intersection of hardware, software and IT consulting, presents us with the opportunity to distinguish between higher and lower-tier middle managers. We derived ratings for managerial position from the company's HR department. HR ranked middle managers according to 4 categories, i.e. regional, divisional, department and account managers. Whereas account managers in another context may not be regarded strictly a middle management position, the matrix structure of the firm in this study with major emphasis on market differentiation places account managers in a central role in the organizational process and hence, the middle

management level. We collapsed these categories into two categories, one for lower-tier managers and one for higher-tier managers. The higher-tier managerial positions consist of managers mainly involved in overarching tasks such as goal alignment and integration and are typically responsible for selected value chains within the firm. Relatively lower-tier managers within the firm are managers primarily responsible for their designated unit.

Performance rating. Performance was rated shortly after we collected network and attritional data. The ratings were derived from the company's yearly performance evaluations, and include financial performance as well as goal attainment of the managers' unit. These performance ratings represent a valid measure of the respondents' performance in managing their respective unit for three reasons. First, the ratings were used for promotion and salary decisions and therefore should have been made very diligently. Second, the ratings were conducted by the respondents' direct supervisors as well as their supervisors who should be both in a good position to judge the managers' unit performance. Ratings that are based on two person's judgment should increase the objectivity of the ratings. Ratings were made on a scale reaching from the worst possible category "1" to the best possible category "5". Third, we investigated cross validity by comparing measures of the company matrix with a self-reported measure for performance from the survey (Wiklund and Shepherd, 2005) and found that both measures show high similarity ($r = .43$, $p < .01$) providing further foundation for the applicability of our measure.

Data Analysis Strategy. A number of issues for hypothesis testing arise that deserve attention. First, the branches of our company were located in different European countries. Due to cultural and regional differences our observations might not be

independent within countries, which violates the assumption of independent errors in regression analysis. As a consequence, significance levels might be estimated too low. We corrected for this possibility using the cluster command in *STATA 9.0* statistical software package which provides a more conservative test of the hypotheses by using robust estimators of variance.

Second, for the test of the impact of entrepreneurial orientation on strong ties, a prerequisite for a model of full mediation, we had to regress a series of independent variables on the independent variable "Tie strength", which is the count measure of the number of strong ties in a respondent's network. Ordinary least square regression (OLS) assumes normal distributed errors but this assumption is likely to be violated in the case of count variable like ours, which are often Poisson distributed and highly skewed (as it is in our case). Count outcome variables are sometimes log-transformed and analyzed using ordinary regression to deal with this problem. However, many issues arise with this approach, including loss of data due to undefined values generated by taking the log of zero, as well as the lack of capacity to model the dispersion. Instead, we used Poisson regression which assumes the dependent variable to follow a Poisson distribution and that the logarithm of its expected value can be modeled by a linear combination of unknown parameters. In particular, we included zero-inflated Poisson regression because 66 of 273 respondents did not have any strong ties. We examined with the Vuong-test whether a zero-inflated Poisson regression provides a better fit than a standard Poisson regression for the full model (Model 5). The Vuong-test revealed that a zero-inflated Poisson regression was indeed more appropriate than a standard Poisson regression ($z = 2.71; p < .01$).

Using ordinary regression analysis also leads to problems when testing the impact of the independent and mediating variable on performance, as the dependent

variable is ordinally scaled. OLS has the potential to produce potentially misleading results according to the numerical values assigned to the different ordinal response levels because it assumes that the distances between adjacent categories are known. In the case of performance ratings we do not know if the distance between two adjacent categories means the same performance difference over all categories as in ratio or interval scaled variables. For example, it might be more difficult to climb from a two to a three than from a three to a two. Instead, we used an ordered logit model that makes use of the ordered nature of the response levels without having to assume that the distances between categories are known. In an ordered logit regression, the ordered log odds of falling in a higher category of the dependent variable is estimated as a linear function of a set of independent variables and a set of cut points.

Prior to analysis we standardized all variables except for the dichotomous variable middle-manager's position, which centers the variables around their mean, reducing the problem of multicollinearity (Aiken & West, 1991).

In table 1, depicted on the next page, we present the descriptive statistics and the correlation matrix for the variables included in the study. With respect to issues related with multicollinearity, we calculated the variance inflation factors (VIF) for each of the regression equations. The maximum VIF we found was 4.67 which was assigned to one of the control variables, and the maximum VIF assigned to one of the main constructs was 1.81, both well below the cut-off point of 10 (Neter, Wasserman and Kutner, 1990).

TABLE 1

Descriptive statistics

	Variables	Mean	s.d.	1	2	3	4
1.	Tenure	18.44	9.78				
2.	Gender	1.88	.33	.01			
3.	Entrepreneurial orientation	4.91	.97	-.10	.06		
4.	Strong ties	2.07	1.61	.15*	-.02	.18**	
5.	Middle-manager's position	0.22	.42	-.04	.12*	.07	-.08

* $p < .05$; ** $p < .01$; $N = 273$ **TABLE 2**

Regression results

Dependent Variables	Strong ties			Performance				
	1	2	3	4	5	6	7	8
Gender	-.01	-.01	-.01	.11	-.14	.10	-.14	-.04
Tenure	.12** *	.13** *	.09** *	.18	-.13	.20	-.14	-.10
Entrepreneurial orientation		.16** *	.14** *		.40** *			.25*
Strong ties						.17	.15	-.01
Middle-manager's position			-.18				.62**	.41*
Strong ties X Position			-.01					.32*
EO X strong ties								-.11
R2				.01	.02	.01	.02	.04

Note: All coefficients are standardized coefficients. Results of Model 1-3 are based on zero-inflated poisson regressions. Results of Models 4-8 are based on ordered logistic regressions. Reported R2 are pseudo estimates of explained variance. R2 are not available for ordered logistic regressions (Models 1-3). All reported significance levels are corrected for clustering within countries. $N = 273$; * $p < .05$; ** $p < .01$; *** $p < .001$; reported significance levels are two-tailed

Table 2 depicted on the previous page, presents the results for our proposed model. Model 1 till three examine the required condition for investigating a model of mediation, while model 4 till 8 assess our stated hypotheses.

Hypothesis 1 tested whether the number of strong ties mediated the indirect effect of entrepreneurial orientation on performance. We first used the Baron and Kenny (1986) stepwise approach to explore the mediation. After controlling for gender and tenure as alternative predictors for performance (Model 4), we found a significant relationship of entrepreneurial orientation with performance ($\beta = .40$; $p < .001$), hence entrepreneurial orientation had a significant relationship with performance (model 5). Step 2, investigating the positive impact of entrepreneurial orientation on the number of strong ties was also satisfied (Model 2). Step 3 proposes a relationship between number of strong ties and performance. Model 6 shows that this was not supported and thus we reject hypothesis 1.

Hypothesis 2 tests whether the indirect effect of entrepreneurial orientation on performance mediated by number of strong ties is stronger for high-tier managers than for low-tier managers. We followed Edwards and Lambert's (2007) approach to overcome a series of problems with currently used mediation techniques (see for a discussion of these problems Edwards & Lambert, 2007). In particular, indirect effects involve the calculation of product terms across regression equations, which often have a non-normal distribution. Conventional significance tests for non-normal distributions in regression analysis lead to a high Type I error rate (Shrout & Bolger, 2002). We followed Edward and Lambert's procedure and first tested a interaction between entrepreneurial orientation X middle-manager's position on strong ties (Model 3) (Edwards & Lamberts, 2007; equation 5) and then a model containing the interactions between entrepreneurial

orientation X middle-manager's position and strong ties X middle-manager's position (Edwards & Lamberts, 2007; equation 5) (Model 8). We then used the regression coefficients from 1,000 bootstrapped samples to obtain bias-corrected parameter estimates and associated significance levels. The results show that the indirect relationship of entrepreneurial orientation on performance mediated by number of strong ties was moderated at the second stage (i.e. no of strong ties → performance). The indirect relationship only existed for high-tier managers ($\beta = .29$; $p < .05$) rather than for low-tier managers ($\beta = -.01$; *ns.*) and this difference was significant ($p < .01$). Thus, Hypothesis 2 is fully supported.

DISCUSSION AND CONCLUSION

Strategic scholars strive to understand how corporate entrepreneurship is first initiated, developed and finally how it adds to performance outcomes. In this paper we devise a model that investigates the role of embedded middle managers at different hierarchical positions within the firm in deriving strategic value from the entrepreneurial orientation they exert within their respective units. Our results suggest middle managers to play an important role in accommodating and nurturing entrepreneurial efforts within their respective units. However, for some of them their social embeddedness determines their effectiveness in appropriating value from their entrepreneurial orientation. Our results show that particularly for entrepreneurial initiatives at relatively higher hierarchical positions, strong ties represent an indispensable mediating factor in realizing the inherent value of entrepreneurial orientation.

Apart from the findings with regard to the importance of middle management, our model provides interesting clues regarding the origins of strong ties. Previous research with regard to the origins of strong ties is scarce and is primarily concerned

with structural rather than behavioral antecedents. It stipulates that origins of social networks, next to arising rather spontaneously or induced by structural cues within an organization, may well be a result of the personal disposition of organizational actors.

Theoretical Implications. Our paper contributes to existing literature regarding the impact of entrepreneurial orientation on performance as it extends the entrepreneurial orientation literature to the level of middle managers. Shifting the focus from firm level to middle managers allows a more fine-grained understanding of entrepreneurial orientation and its impact on performance (Davidsson and Wiklund, 2001). Most studies on entrepreneurial orientation at firm level offer clear results with regard to its link with performance and its contingent nature upon e.g. organizational and environmental conditions (Green, Covin and Slevin, 2008; Wiklund and Shepherd, 2005). However, by solely looking at firm level, a relatively shared entrepreneurial orientation is assumed among the relevant decision makers within an organization, which may not necessarily be representative (Lyon, Lumpkin and Dess, 2000; Wiklund and Shepherd, 2003).

Broadening the application of entrepreneurial orientation to the middle management level extends the theoretical grounding of the construct, making it less general and better equipped to capture the essence of local entrepreneurial processes within established firms. The middle management level may be of particular interest when investigating entrepreneurial processes in established firms, due to their pivotal role in selecting, championing and implementing entrepreneurial initiatives (Floyd & Wooldridge, 1997; Floyd and Lane, 2000). As our results show, the positive relationship between entrepreneurial orientation and performance is also present at lower levels of analysis. Entrepreneurial orientation of middle managers is shown to be an important predictor of designated unit performance as it allows middle managers to break away

from existing path dependent conditioning and realize entrepreneurial potential within their respective units. While the entrepreneurial orientation of middle managers is important for subsequent performance, the local notion of the concept in the current study warrants attention for enabling factors that facilitate middle managers ability to realize the inherent value of their entrepreneurial orientation. The entrepreneurial orientation of individual managers may be high, but support systems and legitimacy associated with championing entrepreneurial initiatives may be absent.

Our detailed approach, focusing on middle managers as drivers of local performance allows us to assess the impact of individual network characteristics as a mediating condition between entrepreneurial orientation and performance. The building of strong ties and drawing on its beneficial aspects represents a vital factor for middle managers aiming to leverage entrepreneurial orientation. Initiating new entrepreneurial projects requires managers to utilize their embedded network position to discuss nascent ideas, negotiate for the necessary room to maneuver, and source for the necessary support. Although we hypothesized strong ties to mediate the relationship between the entrepreneurial orientation of middle managers and subsequent performance, we find that strong ties are primarily instrumental for managers in relatively higher positions, i.e. divisional and regional managers rather than department and account managers. This illustrates that relatively lower placed managers are able to push their entrepreneurial orientation rather autonomously. A potential explanation could be that entrepreneurial initiatives at a relatively lower hierarchical level in the firm may impact primarily the designated unit of the middle manager and do not stretch across regional and functional boundaries.

Our findings are in line with previous research regarding strong ties and substantiate the enabling effect on building and sharing intellectual capital (Nahapiet & Ghoshal, 1998) and explaining performance on innovation-oriented tasks (Moran, 2005). The relatively higher positioned manager in our context refers to divisional and regional managers, accountable for performance of a relatively larger part of the organization. This position is expected to bring more authority to the task situation of the middle manager, but simultaneously each decision is likely to impact many actors within the organization. When dealing with entrepreneurial initiatives, the ability to create commitment, enthusiasm and support from all actors involved strongly outweighs the authority that may be utilized to coercively pursue entrepreneurial avenues. The ability to negotiate for initiation, development and implementation of high impact entrepreneurial projects therefore becomes an essential part of the activities of the middle manager. Especially when stakes are high, outcomes uncertain and selected projects experience initial negative results, middle managers with a strong network are better equipped to resist pressures for aborting potentially high yield projects (Krackhardt, 1992).

In addition, our study adds to literature on antecedents of social networks as it shows that the entrepreneurial orientation of managers leads them to build a network with strong ties (Thompson, 2005). The local attitude towards risk taking, proactiveness and innovativeness commands investing in network ties that will aid the focal manager in creating a comfort zone for discussing entrepreneurial avenues, without the fear of being perceived as deviant and a threat to existing activities. Exchanging sensitive and/or complex knowledge requires middle managers to have a network of strong ties that facilitates the process of sharing knowledge in a timely manner. Strong ties are further instrumental in generating support for selected entrepreneurial efforts and may

aid the focal manager to acquire the necessary physical resources or negotiate legitimate commitment from key individuals in a timely manner. Building strong ties is therefore a logical step for any manager seeking to advance entrepreneurial initiatives within the constraints of an existing organization. Research on antecedents of social networks has been scarce but recently attention is mounting. Our study adds to previous findings regarding psychological and behavioral antecedents of social networks (Mehra, Kilduff and Brass, 2001; Klein, 2004) and shows that entrepreneurial oriented managers invest in building strong ties due to the perceived value for leveraging their entrepreneurial orientation. Whereas this is a necessary mediating step for relatively higher-tier middle managers, for lower tier middle managers this may be a sub-optimal endeavor as investments in maintaining strong ties do not translate to their ability to realize additional value from their entrepreneurial orientation.

Limitations and future research. Our study is prone to several boundary conditions that offer fruitful avenues for future research. We look at the mediating role of strong ties on the relationship between entrepreneurial orientation and performance but it may be interesting to consider how other network aspects, such as density and/or centrality impact this relationship. Density is expected to enhance the level of trust as well as to strengthen the support network for entrepreneurial avenues, however may also lead to the exchange of primarily shared information rather than to allow for effective exchange of distinct knowledge strands (Rowley, 1997; Sparrowe, Liden, Wayne and Kraimer, 2001). Centrality would be expected to be especially conducive in generating support and acquisition of knowledge as it places the focal manager as the nexus for information flows within the organization (Ibarra, 1993; Rodan and Galunic, 2004).

Furthermore, our conceptualization of entrepreneurial orientation at the middle management level represents an untested measure that needs further validation in literature. As we use similar items as the firm level scale and have only adapted it to fit the middle management level, future studies are necessary to place the measure more thoroughly in literature. However, our findings reflect its applicability for explaining performance and the opportunities it grants for more fine grained research on entrepreneurial orientation of middle managers warrants our current approach.

In addition, future studies could investigate *who* managers turn to for their knowledge inputs in a dynamic system of social relations and how this affects the way they use this for enactment of their entrepreneurial orientation. For example, future studies may look at bridging ties, investigating ties that stretch departmental and/or country boundaries. Drawing support from a more integral part of the organization or sourcing for relevant knowledge from other departments may be a vital element to realizing entrepreneurial potential. Moreover, changing the research setting to integrate our current approach and the cross-sectional approach at firm level would allow a multi-level assessment of the entrepreneurial orientation of middle managers in the context of differential entrepreneurial orientations at firm level.

Conclusion. This study underlines the important role of middle managers in navigating change. Their entrepreneurial orientation is shown to be a guiding aspect in selecting, building and implementing corporate ventures. Moreover the pivotal role of strong ties is confirmed as a mediating element between entrepreneurial orientation and subsequent performance for relatively higher placed middle managers. Overall, our study signals the beneficial impact of middle management involvement and calls for further attention to studies on middle managers and their role in building new corporate ventures.

CHAPTER 5: GENERAL DISCUSSION

Summary of main findings. Our first study investigates antecedents of entrepreneurial orientation. This study aims to develop and test an empirical model for the explanation of a firms' entrepreneurial orientation. For this purpose we adopted a knowledge based perspective and argue that firms are essentially bundles of knowledge, and that utilizing internal and external knowledge may be essential for establishing an entrepreneurial orientation. To this end, we examine the joint impact of senior team knowledge acquisition and decision making comprehensiveness on entrepreneurial orientation and posit that knowledge acquisition of senior teams provides an important foundation for entrepreneurial orientation. However, knowledge acquisition alone may not be sufficient for enhancing entrepreneurial orientation. We contend that senior team decision making comprehensiveness mediates the relationship between knowledge acquisition and entrepreneurial orientation as it reduces the level of uncertainty and ambiguity surrounding newly acquired knowledge, alleviating restrictions for enhancing the entrepreneurial orientation of the firm. We hypothesize that decision making comprehensiveness is especially important when senior teams acquire both a high degree of internal and external knowledge. Results however show that although decision comprehensiveness mediates the relation between the separate notions of internal and external knowledge acquisition and entrepreneurial orientation, the combination of both types of knowledge fails to add to comprehensive decision making processes.

Main Findings Study 1

- Internal and External knowledge acquisition is an important predictor of entrepreneurial orientation
- Decision Comprehensiveness mediates the relationship between knowledge acquisition and entrepreneurial orientation
- Simultaneous acquisition of Internal and External knowledge leads to a higher entrepreneurial orientation

Our second study investigated how senior team attributes moderate the relationship between entrepreneurial orientation and firm performance. For this purpose an attention based perspective is adopted, focusing on attention scope as well as distributed and situated attention. By considering the role of senior team heterogeneity in broadening the attention scope of senior teams and the role of senior team shared vision in aligning distributed attention across organizational functions, this research investigates how senior teams may enhance the value creating potential of entrepreneurial orientation. In addition, we assess situated attention by including the notion of environmental dynamism and examining whether the role of the senior team attributes is contingent upon environmental conditions. We find that senior team heterogeneity helps firms to leverage their entrepreneurial orientation and improve their performance. Moreover, once environmental conditions are taken into account, results indicate that the absence of heterogeneity at senior team level may be particularly detrimental for firms operating in stable environments. The direct moderating effect of shared vision on the relationship between entrepreneurial orientation and performance is not substantiated. However, senior team shared vision has a positive impact for firms operating in dynamic environments, providing a

premium for firms aiming to realize the inherent value of entrepreneurial orientation. Our research provides important implications for senior teams aiming to leverage their entrepreneurial orientation into increased firm performance. Evidence shows that while a heterogeneous team composition and senior team shared vision may provide several benefits, these advantages may fluctuate across environmental conditions.

Main Findings Study 2
<ul style="list-style-type: none">• Senior team heterogeneity positively moderates the relationship between entrepreneurial orientation and firm performance• Senior team heterogeneity has a more positive moderating impact on the EO-Performance relationship in relatively more stable environments• Senior team shared vision has a positive moderating impact on the relationship between entrepreneurial orientation and firm performance in dynamic environments.

Our third study investigated similar processes, but at a lower level of analysis. Entrepreneurial orientation at firm level represents a firm-wide posture that allows entrepreneurial initiatives to blossom due to the encompassing disposition towards entrepreneurship, support systems in place and legitimacy associated with opting for entrepreneurial business solutions. At the middle manager level, entrepreneurial orientation may be high, however support systems are less defined and the rationale for pursuing entrepreneurial initiatives more ambiguous. Middle managers therefore have to constantly negotiate the room to maneuver in realizing the inherent value encapsulated in their entrepreneurial orientation. Given the different dynamics that evolve from investigating entrepreneurial orientation at the middle management level in comparison to firm level we opt to adopt a social network perspective as this enables us

to tap into the social context in which the focal manager is attempting to realize the inherent value of their entrepreneurial orientation. We posit that strong network ties mediate the relationship between entrepreneurial orientation and designated unit performance as they facilitate reciprocal knowledge exchange and bring trust and support to the task situation of the manager. In addition we investigate a model of moderated mediation, in which managerial hierarchical level influences our proposed mediating effect. Middle managers in relatively higher tier positions are generally more detached from their subordinates. Simultaneously, middle managers in relatively higher hierarchical positions within the firm are expected to champion entrepreneurial projects with greater impact, both physically, as well as on a social and political level. This complicates the process of sourcing, recognizing potential and evaluating new entrepreneurial initiatives as well as negotiating appropriate support and legitimacy for continuing with selected entrepreneurial avenues. Strong ties are therefore expected to play an even more important role than for managers in a relatively lower-tier position. We find that the mediating role of strong ties, between entrepreneurial orientation and subsequent unit performance, exists only for relatively higher-tier managers.

Main Findings Study 3
<ul style="list-style-type: none"> • The entrepreneurial orientation middle managers exert within their designated unit is connected to unit performance • The entrepreneurial orientation of middle managers is a strong predictor of their number of strong ties • Strong ties mediate the relationship between the entrepreneurial orientation of middle managers and designated unit performance, but only for middle managers in a higher relative position

Theoretical Implications. All studies in this dissertation hold implications for the respective theoretical domains in which they were conducted, which we discuss in each chapter. Here, I will focus on the joint contributions of these studies for our understanding of entrepreneurial orientation.

The first implication addresses the level of analysis of entrepreneurial orientation, shifting focus from the general entrepreneurial orientation of senior manager of the firm to the entrepreneurial orientation of middle managers. By doing so, we broaden the theoretical and empirical foundation of the entrepreneurial orientation construct and provide opportunities for future research in this area. Shifting focus from the general entrepreneurial orientation as formulated by senior management, with accompanying firm wide support systems and rationale associated with opting for entrepreneurial business solutions, introduces new dynamics to literature on entrepreneurial orientation. Enacting the entrepreneurial orientation now becomes an more local endeavor of middle managers while managing their designated unit, they have to negotiate for the room to maneuver, acquire adequate funding and build legitimacy around local entrepreneurial initiatives. Whereas most of the previous literature has focused on entrepreneurial orientation as a firm wide construct, we posit that it may also have its merit as a scientific instrument at the level of middle managers. This is especially important as previous literature on the seedlings of entrepreneurial initiatives stresses that the middle management level may be one of the most important sources of establishing, maintaining and realizing the value of entrepreneurial efforts within the firm (Wooldridge and Floyd, 1997; Floyd and Lane, 2000).

The second implication is related to the application of the attention based view to literature in entrepreneurial orientation. We contend that the attention based view has some important implications for senior teams aiming to leverage their entrepreneurial

orientation. Building from the premise that senior managers fulfill an important coordinating function at senior team level, attention based processes are shown to add significantly to the value creating potential of entrepreneurial orientation. First, evaluating viability of entrepreneurial initiatives and establishing a well balanced entrepreneurial portfolio is one of the most important functions of the senior team. Second, senior managers are instrumental in eliminating distributed attention across organizational functions and streamlining the corporate entrepreneurial process. Third, taking environmental dynamism into account, senior teams may need to deploy different strategies when leveraging their entrepreneurial orientation across environmental conditions, signaling the importance of situated attention.

The third implication concerns the valuable role of social networks for realizing the performance benefits of the entrepreneurial orientation of middle managers. Evaluating entrepreneurial orientation at the middle management level leads to new dynamics that have to be considered in the relationship between entrepreneurial orientation and performance. Entrepreneurial orientation at the middle management level may be high, but context becomes ever more pervasive in allowing the manager to reach his or her entrepreneurial potential. The mechanisms described in the study are well known in social psychology, i.e. attitudes, beliefs or orientations have been shown to be important predictors of social network building. Moreover networks are shown to mediate the relationship between the local disposition of organizational agents and their performance levels (Mehra, Kilduff and Brass, 2001). This dissertation shows that such mechanisms function equally well when it involves entrepreneurial orientation. Realizing the inherent value of entrepreneurial orientation presents specific challenges for the network position of the local middle manager as it requires them to overcome uncertainty and resistance to change. Our findings provide some new insights on the

role of individual network characteristics for allowing middle managers to leverage their entrepreneurial orientation. Our research shows that the network of strong ties plays a particular role in providing fluid exchange relationships, both in terms of 'complex' knowledge, support and allocated legitimacy.

The fourth implication concerns the theoretical lenses applied in the first paper of this dissertation. This paper connects upper echelon theory with the knowledge based view of the firm. Upper Echelon theory asserts senior managers to be in many ways pivotal actors in explaining firm outcomes (Hambrick and Mason, 1984). The knowledge based view considers firms to consist of bundles of knowledge and performance benefits may be derived by combining different knowledge strands in a more effective way than rivals. Taken together and applied to literature on entrepreneurial orientation we argued for the important role of senior team knowledge acquisition as a prerequisite for establishing and maintaining an entrepreneurial orientation. Internal and external knowledge acquisition are shown to be important as they inform senior teams about the potential and need for entrepreneurial orientation and most importantly reduce ambiguity and uncertainty that could potentially stifle the ability to establish and maintain an entrepreneurial orientation. Sourcing for knowledge inside and across firm boundaries provides the senior team with increased understanding about the connection of internal capabilities and competencies with opportunities that arise in the external environment. Senior teams that are better informed than competitors will be more readily inclined to establish an entrepreneurial orientation and provide organizational actors at different levels within the firm with the support systems necessary to enact the entrepreneurial orientation.

Theoretical Contributions

- Level of analysis Entrepreneurial Orientation Construct
- The premise of social network theory for EO on the middle management level
- Integrating the Attention based View with Literature on Entrepreneurial Orientation
- Integrating the knowledge based view of the firm with Upper Echelon Theory

Managerial implications. In addition to the theoretical implications, this study holds value for managers and practitioners. The main implication of this dissertation is found in the results pertaining to the additional value that can be extracted from entrepreneurial orientation if the accompanying processes are appropriately managed. Managerial considerations at both senior team and middle management level are shown to significantly add to the value creating potential of entrepreneurial orientation. This provides compelling insights for firms seeking to advance their corporate entrepreneurial function by reconsidering the composition of senior teams. Firms may choose to engage in more balanced promotion schemes that would increase the level of task-related heterogeneity at senior team level. Similarly they may invest more heavily and put more emphasis on achieving a shared vision. Both aspects however are shown to be context specific as the level of environmental dynamism needs to be taken into account when determining the optimal level of heterogeneity and shared vision within the team. Firms should therefore adopt an ad-hoc approach to senior team composition and consider environmental conditions as well as fluctuations in those conditions. As a general guideline, it seems that firms operating in a stable environment may benefit most from accommodating heterogeneity within their senior team. Once the level of environmental dynamism rises it becomes more important to focus on creating a shared vision within the senior team.

The results from our third study signal that apart from entrepreneurial orientation at firm level, recognizing the entrepreneurial orientation of middle managers may aid in realizing the entrepreneurial propensity of the firm as a whole. More specifically, we find that firms should facilitate appropriate support for network building activities of middle managers. Despite the costs associated with maintaining strong networks, their value for realizing the inherent value of the entrepreneurial orientation

of relatively higher-tier middle managers is apparent. Firms may therefore adopt a more enabling attitude towards network creation and maintenance allowing the time and effort that is involved in building strong ties. As our results only pertain to relatively higher placed middle managers, the mechanisms at lower hierarchical levels remain elusive. We might expect that formal support systems would be more appropriate for aiding middle managers at lower levels within the firm to leverage their entrepreneurial orientation. For example, firms may implement adaptive resource allocation systems that allow sufficient flexibility in terms of recognizing and financing promising entrepreneurial avenues. Furthermore, they could introduce mentoring structures in which more senior managers monitor and support entrepreneurial activities of lower placed managers by acting as their sounding board.

Lastly, the attention based view provides a clear and concise framework for firms seeking to broaden their entrepreneurial horizon. This dissertation shows that by managing three core concepts to strategy formation, i.e. the attention scope, distributed attention and situated attention, firms may become significantly more effective in managing their entrepreneurial orientation. While any of these concepts may be strongly rooted in the firms' perception of how to formulate future strategies, it is exactly the joint application of these concepts that precedes successful entrepreneurial activity. Without the broad attention scope, the initial pool of potential entrepreneurial avenues would be too narrow. Without attention for the distinct activities within the firm and the necessity to integrate and look for complementarities, the firm risks to dissolve into fragmented structures. From an environmental perspective, the application of both a broad attention scope and managing the distributed pool of activities seems disconnected without ample consideration for the environment the firm is faced with. Firms operating in a relatively stable environment may draw from a more narrow

attention scope and have less distributed attention to overcome as a result. However, over time this type of firm may become complacent and fail to attend to emerging strategic developments in general. Sudden shifts in the firms' environment may then lead them to become obsolete. In contrast, firms operating in a dynamic environment may become overly consumed with the frenetic pace of environmental changes and their ability to keep up with environmental developments. This may result in failure to retain coherence and fit between activities. In this case, devising a strategically based focus that underlines the multitude of emerging options but provides an analytical foundation for choosing to focus on a distinct subset of alternatives may be most beneficial.

Managerial Contributions
<ul style="list-style-type: none">• Senior team Composition• Social networks enable entrepreneurial potential• Three core aspects to entrepreneurial strategy formation

Limitations and directions for future research. Our first study is prone to several boundary conditions that offer fruitful avenues for future works. First of all, we have looked at the relationship between knowledge acquisition and decision making comprehensiveness under *ceteris paribus* conditions. However, one obvious avenue would be to consider how different environmental conditions play a role, and how the quantitative and qualitative properties of knowledge acquisition could be contingent on this. Furthermore, the effect of decision making comprehensiveness may be analyzed more thoroughly, investigating potential moderating effects on its applicability. For example Frederickson and Mitchell, (1984) maintain that decision making comprehensiveness may reach a boundary condition in dynamic contexts. Since entrepreneurial orientation is especially important in dynamic environments this element should be further investigated.

Next, our conceptualization of knowledge acquisition has been from the perspective of the senior team. However, more insights could be obtained by adopting network approaches to understanding knowledge acquisition. Of particular interest could be looking at *who* senior team members turn to for their knowledge inputs in a dynamic system of social relations and how this affects the way they use this. Finally, cultural and contextual aspects cannot be ruled out, and thus comparative works of replications and extensions in other national settings could help validate our results. Future works in this stream of thought could benefit substantially from these considerations.

Our second study provides for a first step into the investigation of senior team moderators of the relationship between entrepreneurial orientation and firm performance. This study is not without its limitations, hence suggests the need for future research. Although this study is based on two datasets measuring the independent and

dependent construct in two separate instances over a two year period, it may be interesting to study the role of senior teams over a longer period in time. This would enable us to assess whether temporal changes in senior team heterogeneity, shared vision and environmental dynamism impact the relationship between entrepreneurial orientation and firm performance. An extended time frame may be especially interesting when investigating the impact of senior team shared vision, as it may provide additional insights into the potential for path dependency. As senior team shared vision puts an emphasis on common goals, diverging initiatives may not be supported by senior teams, inflicting path dependency in the long term. It may also be interesting to include the notion of 'content' into the conceptualization of senior team vision. In this way future studies may control for quality aspects related to vision and assess more comprehensively whether the moderating effect of shared vision in relatively stable environments indeed remains absent. Interesting avenues in this respect are, the longevity of vision, i.e. short term vs. long term and coherence of vision, i.e. with a focus on complementarity vs. fragmented approach. This study further indicates that when investigating senior team shared vision in future studies, researchers should account for environmental pressures, such as the level of dynamism or competitiveness.

For our third study, we look at the mediating role of strong ties on the relationship between entrepreneurial orientation and performance but it may be interesting to consider how other network aspects, such as density and/or centrality impact this relationship. Density is expected to enhance the level of trust as well as to strengthen the support network for entrepreneurial avenues, however may also lead to the exchange of primarily shared information rather than to allow for effective exchange of distinct knowledge strands (Rowley, 1997; Sparrowe, Liden, Wayne and Kraimer, 2001). Centrality would be expected to be especially conducive in generating support and

acquisition of knowledge as it places the focal manager as the nexus for information flows within the organization (Ibarra, 1993; Rodan and Galunic, 2004).

Furthermore, our conceptualization of entrepreneurial orientation at the middle manager level represents an untested measure that needs further validation in literature. Although we use similar items as the firm level scale and have only adapted it to fit the middle management level, future studies are necessary to place the measure more thoroughly in literature. However, our findings reflect its applicability for explaining performance and the opportunities it grants for more fine grained research on the entrepreneurial orientation of middle managers.

In addition, future studies could investigate *who* managers turn to for their knowledge inputs in a dynamic system of social relations and how this affects the way they use this knowledge for enactment of their entrepreneurial orientation. For example, future studies may look at bridging ties, investigating ties that stretch departmental and/or country boundaries. Drawing support from actors distributed across a more integral part of the organization or sourcing for relevant knowledge from other departments may be a vital element to realizing entrepreneurial potential. Moreover, changing the research setting to integrate our current approach and the cross-sectional approach at firm level would allow a multi-level assessment of the entrepreneurial orientation of middle managers in the context of differential entrepreneurial orientations at firm level.

Conclusion. Following previous research (Lumpkin and Dess, 1996) we found that the relationship of entrepreneurial orientation and performance is consistently positive. However, by combining theoretical lenses in each paper, we were able to add substantially to the understanding of the condition specificity of the relationship

between entrepreneurial orientation and firm performance. The results of this dissertation are certainly not exhaustive and the rich results warrant further investigations in the area of entrepreneurial orientation. Broadening the theoretical foundation of entrepreneurial orientation by investigating it at different levels of analysis, e.g. firm, project and middle managers remains an interesting area for future research.

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ABOUT THE AUTHOR

Sebastiaan van Doorn was born on October 17th 1980 in Wahroonga, Australia. After finishing high school he studied Industrial Design at Delft Technical University and Sociology at the Erasmus University Rotterdam. In 2008 Sebastiaan obtained his Mphil. degree in Business research Cum Laude. In the same



year he started his Ph.D. at the Department of Strategy and Entrepreneurship at the Rotterdam School of Management, Erasmus University. In 2011 he spent two months as a visiting scholar at Singapore Management University. Currently he is visiting assistant professor at the same University. His research interests include corporate entrepreneurship, social networks, leadership, decision making and upper echelons.

Sebastiaan has presented his work at the Academy of Management Meeting in (Chicago, 2009), (Montreal, 2010) and (San Antonio, 2011), as well as the European Group of Organizational Studies Conference (Barcelona, 2009), the European Academy of Management (Rome, 2010) and the Strategic Management Society Conference (Rome, 2010). In 2009 he featured in the best paper proceedings of the Business Policy and Strategy section of the Academy of Management in Chicago. His work has further been published in the Journal of Product Innovation Management as well as in several books.

SAMENVATTING (SUMMARY IN DUTCH)

Het realiseren van ondernemerschap in bestaande organisaties kent een aantal aandachtspunten die in deze dissertatie worden onderzocht. De dissertatie bestaat uit 5 hoofdstukken die elk een belangrijke inzicht geven in de context specifieke aard van ondernemerschap. Hoofdstuk 1 geeft een overzicht van de contributies van de dissertatie, waarbij met name wordt gefocust op de samenhang van de onderzoeken zoals uitgevoerd. Hoofdstuk 2 beschrijft de creatie van ondernemerschap en de daarin bepalende rol van top management teams. Deze studie beschrijft hoe interne en externe kennis acquisitie beide een belangrijke rol spelen in de creatie van ondernemerschap en dat het simultaan nastreven van interne en externe kennis acquisitie een extra stimulans geeft voor ondernemerschap. Hoofdstuk 3 betreft een studie naar de rol van top management teams in het vertalen van ondernemerschap naar betere financiële prestaties. De studie onderzoekt de specifieke rol van team diversiteit en het accommoderen een gedeelde visie binnen het top management team. Beide elementen spelen een belangrijke rol, waarbij team diversiteit belangrijker is in stabiele marktomstandigheden en het hebben van een gedeelde visie beter tot zijn recht komt in dynamische marktomstandigheden. Hoofdstuk 4 beschrijft een studie binnen een Europese tak van een organisatie actief in software, hardware en consultancy. Hierbij ligt de focus op individuele middle-managers en de manier waarop zij ondernemerschap kunnen vertalen naar verbeterde financiële prestaties. Resultaten laten zien dat hun netwerkpositie van belang is, met name de zogenaamde 'sterke' netwerkverbanden blijken leidend voor het vertalen van ondernemerschap naar verbeterde prestaties. Hoofdstuk 5 biedt een algeheel overzicht van de belangrijkste conclusies van de dissertatie, alsmede richtingen voor toekomstig onderzoek.

SUMMARY

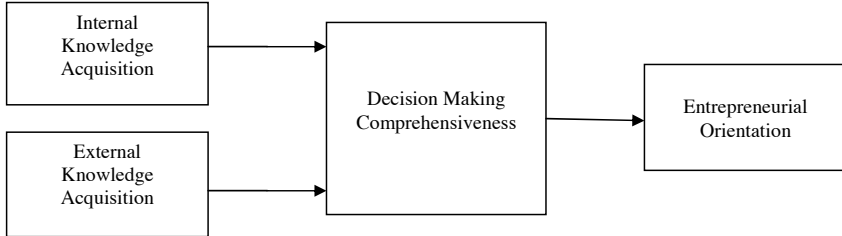
Recently, scholars have become increasingly interested in the way existing firms accommodate entrepreneurial initiatives. They strive to understand how firms initiate entrepreneurial projects, and more importantly how these projects may add to firm performance. Focus has primarily been on organizational and environmental moderators (Rauch et al. 2011) providing strong evidence on the context specificity of the relationship between entrepreneurial orientation and performance. In this study we aim to investigate the impact of managerial agents from different hierarchical levels in the firm. Previous research has stresses the importance of top managers in steering the entrepreneurial trajectory of the firm (Hambrick and Mason, 1984) as well as the role of middle managers in providing support and legitimacy to nascent entrepreneurial avenues (Wooldridge and Floyd, 1997). By looking at managerial involvement in entrepreneurial activities we assess how managers may be instrumental in creating and maintaining an entrepreneurial orientation as well as translating it into increased performance.

We aim to shed new light on these issues by investigating the concept of entrepreneurial orientation, i.e. the risk taking propensity, innovativeness and proactiveness at firm as well as at the middle management level. More specifically we aim to investigate the different roles senior teams and middle managers play in establishing as well as realizing the value of entrepreneurial orientation. The three studies center on the concept of entrepreneurial orientation, however each paper has its distinct purpose and focus. The first study views entrepreneurial orientation as a dependent variable, the second and third study focus on the outcomes of entrepreneurial orientation. The first two studies assess the impact senior management

teams may have on enhancing the entrepreneurial orientation as well as increasing its value creating potential. The third study examines entrepreneurial orientation at the level of middle managers and aims to address the value social networks of middle managers may have for realizing the inherent value of their entrepreneurial orientation. The studies use four distinct but mutually complementary theoretical lenses, i.e. upper echelon theory (Hambrick and Mason, 1984), social network theory (Granovetter, 1973), the knowledge based view (Grant, 1996) and the attention based view (Ocasio, 1997).

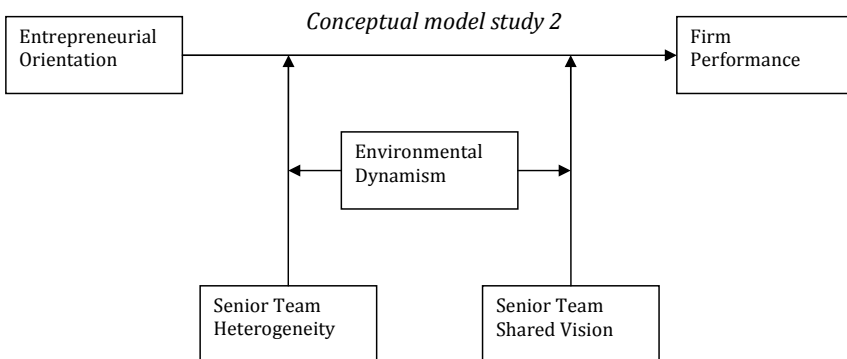
Study 1. Our first study investigates antecedents of entrepreneurial orientation. This study aims to develop and test a model for the explanation of a firms' entrepreneurial orientation. To this end, we examine the joint impact of senior team knowledge acquisition and decision making comprehensiveness on entrepreneurial orientation and posit that knowledge acquisition of senior teams provides an important foundation for entrepreneurial orientation. However, knowledge acquisition alone is not sufficient to indeed develop an entrepreneurial orientation. We contend and find that senior team decision making comprehensiveness mediates the relationship between knowledge acquisition and entrepreneurial orientation as it reduces the level of uncertainty and ambiguity surrounding newly acquired knowledge, alleviating restrictions for the development of an entrepreneurial orientation. The conceptual model of our first study is depicted on the next page.

FIGURE 1
Conceptual model study 1



Study 2. Our second study investigates how senior team attributes moderate the relationship between entrepreneurial orientation and firm performance. In addition, we assess whether the impact of the senior team attributes is contingent upon environmental dynamism. Results show that although senior team heterogeneity acts as a positive moderator on the relationship between entrepreneurial orientation and firm performance, this effect is dampened in dynamic environments. In contrast, the positive moderating role of senior team shared vision is found to exist only in dynamic environments. Figure 2, depicted below, presents the conceptual model for our second study.

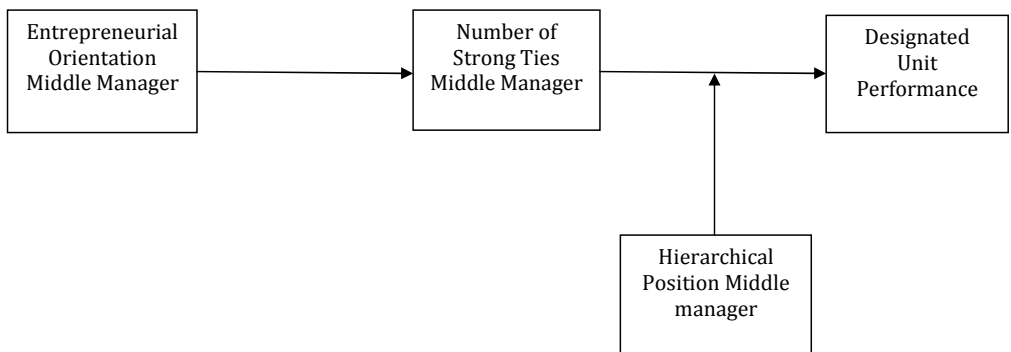
FIGURE 2



Our third study investigates similar processes, but at the level of the middle manager. This paper investigates the link between the entrepreneurial orientation of middle managers and their unit performance. We posit that strong network ties mediate the relationship between entrepreneurial orientation and performance as they bring trust and support to the task situation of the manager. In addition we investigate a model of moderated mediation, in which managerial hierarchical level influences our proposed mediating effect. In fact we find that the mediating role of strong ties, between entrepreneurial orientation and subsequent performance, exists only for relatively higher-tier managers. The conceptual model accompanying our third study is depicted below. Together our studies provide an insightful model of managerial involvement in entrepreneurial processes within established firm. It provides clues as to how managers may play a pivotal role in creating and maintaining an entrepreneurial orientation as well their role in translating the entrepreneurial orientation into increased performance.

FIGURE 3

Conceptual model study 3



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MANAGING ENTREPRENEURIAL ORIENTATION

In this dissertation, we evaluate the roles senior management teams and individual middle managers play in realizing the performance benefits of entrepreneurial orientations. We investigate the role of senior management teams by focusing on a sample of 9.000 firms in the Netherlands. The first study focuses on antecedents of entrepreneurial orientation, i.e. internal and external knowledge acquisition of senior management teams. We find that both internal and external knowledge acquisition are important and that a premium in terms of the entrepreneurial orientation of the firm may be obtained by simultaneously sourcing for both types of knowledge. Our second study presents a model for top management teams aiming to enhance the performance benefits of the entrepreneurial orientation of the firm. We investigate team attributes such as team heterogeneity and shared vision and find some compelling results with respect to their context specific applicability for leveraging the entrepreneurial orientation of the firm. Our final study, based within the European branch of a single firm operating at the intersection of hardware, software and IT consulting, examines the individual entrepreneurial orientation of middle managers and subsequent performance benefits. We find that strong network ties of relatively higher placed middle managers are instrumental for realizing the inherent value of entrepreneurial orientation.

Together, our results emphasize the performance benefits that may be obtained if the entrepreneurial orientation of organizations and individuals is appropriately managed. Attention for knowledge acquisition, team composition, the environmental context as well as network ties and the hierarchical position of individual managers represent essential aspects of effective management of entrepreneurial orientations.

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