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Faculty of Business Economics

Master of Management

Master's thesis

Assessing the Effects of Individual Level Ambidexterity on Innovative Performance in Small and Medium Sized Firms in Belgium.

Priscilla Tetteh

Thesis presented in fulfillment of the requirements for the degree of Master of Management, specialization International Marketing Strategy

SUPERVISOR :

Prof. dr. Allard VAN RIEL



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Abstract

Innovation has long been perceived as a major function in organizations in terms of Research and Development (R&D) and introducing new products. The function of innovation accentuates technical knowledge and identifies R&D undertakings as a predominant measure of technological progressiveness of businesses. For small businesses however, innovation essentially does not result from formal R&D activities, but from daily business developments, cocreation with customers and optimal employment and allocation of their (scarce) resources. Marketplaces are radically evolving and becoming increasingly competitive, resulting from information technology and knowledge sharing. It is important for firms to exploit new ideas, develop new products or services, and improve existing processes in order to be efficient, competitive and profitable. This study examines how ambidexterity at employee level relates to firm innovation performance. Hierarchical regression analysis is used to test the relationship between ambidexterity and firm innovative performance in (small) service firms. Additionally, organizational climate, specifically fairness, affiliation and innovation, are found to moderate the relationships between the variables. Findings show that ambidexterity and exploration are conducive for firm innovativeness, whereas exploitation is not. Thus, fairness and affiliation significantly relate to innovativeness of the firm, whereas exploitation does not.

Dedication

I dedicate this thesis to my late loving mother Ms. Theresah Akosua Degbor, whose dream and support has resulted in this achievement. Theresah's nurturing support moulded me into the woman I am today. Mummy, your death came to me as a shock and took part of my life with it. You are and will forever remain my heroine. You laid a firm foundation for me to build on. You taught me to be strong and resolute. You implanted in me all the virtues of humanity: to be caring and compassionate, to love and share, to be honest and truthful and to be hardworking and self-dependent. It is exactly a year since you left me on a desolate land and exactly a year of me living in unimaginable pain, feeling like an empty sack, a type of emptiness I have never felt in my life. I miss you every moment of my life especially your listening ears, advice and words of encouragement. I have buried you in my heart and will remember you every day. I thank God for the many beautiful memories I shared with you. They will forever remain in my heart, where you are kept forever. I still love you, Theresah.

This one is for you mom!

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Thank you God Almighty for giving me tremendous strength during the challenging moment in completing this thesis. I am very grateful for your love, protection, comfort and grace throughout my entire journey.

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I thank my brother Kelvin Tetteh for his emotional support, prayer and encouragement during this difficult period. Without his unending inspiration I would not have made it this far.

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Executive summary

The purpose of this study was to broaden the scope of knowledge on the significance of ambidexterity on innovative performance at employee level, specifically in service firms. In particular, this study sought to answer the question: How does ambidexterity at individual level influence innovative performance in SMEs?

A quantitative research methodology was implemented for this research. This research drew a sample from a population of service SMEs from various service sectors across Belgium. A total of 350 SMEs were contacted. 121 firms responded, but a total of 116 were eligible for further analysis. A self-administered questionnaire with five-point Likert scales from Janssen (2000) was used to measure the various constructs. Furthermore, in order to account for alternative explanations with regards to the independent variables, three control variables were measured (age of firm, experience and level of education). The researcher assumed that the older the firm, the more learning and experience accumulated. The higher the level of education, the more skill and knowledge acquired, and the longer employees worked in a firm, the more versatile and effective they become at their job.

To answer the research questions, three hypotheses were formulated. The hypotheses stated that high level of ambidextrous behavior would lead to high level of firm innovative performance. High level of exploration and exploitation activities would lead to high level of firm innovative performance. High level of organizational climate moderates the relationship and leads to high level of firm innovative performance.

Factor analysis was first utilized to examine the data structure and whether or not items should be used. Using Cronbach's Alpha, constructs were tested for reliability. Findings from the regression analysis found support for the first hypothesis (H1). The results indicated a positive significant relationship between ambidexterity and firm innovative performance. This implies employee ambidextrous behavior has a positive effect on firm innovativeness. The second hypothesis (H2) was, however, not supported as the regression only showed a significant relationship for exploration, but insignificant relationship for exploitation and firm innovative performance.

There are some limitations found in this thesis and it is the writer's opinion that the findings are generalizable only to service firms since the data was limited to service SMEs with different business models and approaches to innovation.

Chapter 1: Introduction

1.1. Introduction of the subject

Innovation is crucial to the advancement of economies and has become a strategic means employed by firms to boost their image and performance. Its significance in economic development is apparent in almost every aspect of societal, technological and business undertakings. Amabile, Conti, Coon, and Lazenby (1996) describe innovation as firms' ability to incorporate creativity in their activities. From this perspective, individual and group creativity becomes the foundation on which innovation is built. While creativity is critical for innovation, creativity alone is insufficient as a determinant of innovation. Luecke and Katz (2003) define innovation as the introduction of something new. According to them, firms integrate knowledge to form valuable new products, services and or processes. Although other studies have confirmed that innovation is achieved through significant change to a product, service or process, they argued that the change does not necessarily have to relate to something entirely new. It could be incremental improvement based on previous achievement(s) (Amabile, 1997; Harper and Becker, 2004). According to Lawson and Samson (2001), the challenges that firms face may not necessarily be innovation itself but meeting the requirements to innovate regularly while attaining significant success. In this vein, Kamasak (2015) posits, that growing challenges in the business environment, such as digitization, globalization, protection of intellectual property, creativity, etc. have created a new economy where innovation capabilities have become critical for firms.

According to Del Brio and Junquera (2003), small and medium sized firms are the driving force behind economic growth and employment throughout the European Union. Hence, it is extremely crucial for these SMEs to innovate. While Laforet (2011) suggests that SMEs that innovate increase their chances of growth and survival, Knight and Cavusgil (2004) found in their study that SMEs use innovation as a strategy to gain competitive advantage over large firms due to their high level of flexibility and greater ease of adapting to changing needs in the market. However, Harmancioglu, Grinstein, and Goldman (2010) argue that innovation is a common phenomenon among large firms since large firms have access to resources needed for innovation. Laforet (2011) confirmed the findings of Harmancioglu et al. (2010) that SMEs have an advantage over large firms because they are more flexible, and flexibility is crucial for building networks and capitalizing on the emerging opportunities in the market.

While Huang and Chen (2010) found factors that contribute to SME's lack of innovation, which include environmental, individual, structural, and organizational factors, Ebben and Jahnsen (2005)

suggest that SME's use other approaches, such as ambidexterity to achieve innovation. Organizational ambidexterity has been identified as one factor that influences firms' innovative performance. Duncan (1976) introduced organizational ambidexterity in the field of management and used it to describe sequential alignment. He explained sequential alignment as the ability of firms to shift their organizational structures regularly and align the structure to match the firm's strategy thereby achieving ambidexterity in a sequential fashion. While Duncan focuses on integral organizational ambidexterity, March (1991) stresses the ability of firms to learn by *combining* both exploration and exploitation resources. In March's classification, exploration relates to innovation, experimentation, and risk taking, while exploitation relates to efficiency, implementation, refinement etc. Best performing firms are those who successfully combine both exploration and exploitation innovation in an ambidextrous manner, hence firms should be able to combine conflicting task demands that arise.

The aforementioned literature is thought-provoking in that it emphasizes the significance of innovation for the survival of firms and for that matter SMEs. From this perspective, it is important to explore how firms can accomplish the desired innovative performance. To elaborate on this, previous studies have investigated factors that contribute to innovation in firms. For example, Kamasak (2015) established that innovative strategy, culture and customer relationships are all positively related to innovative performance in firms. However, most of the studies focus on large firms and not SMEs. Although other studies focus on innovation in SMEs, according to Antonioli and Della Torre (2015), these studies emphasize the importance of training and knowledge. Again, studies show that ambidextrous activities can help stimulate innovation. However, most of these studies are focused on firm level ambidexterity in large firms. This creates a gap in the literature for SMEs and literature on individual level ambidexterity in SMEs is limited. According to Mom, van den Bosch, and Volberda (2009), this limitation is important to managers in that the conflicting needs for both exploration and exploitation may not only pertain to firm level but also the individual level.

Below, Frese and Anderson (2009) noted that ambidexterity at the individual level can be exceptionally challenging in that it requires certain behaviors that are seemingly contradictory, for instance focusing attention to details in implementing a process and looking for innovative ways to improve the same process. According to Felin and Foss (2005), while understanding firm-level occurrences is important, analyzing individuals as a fundamental element within firms is equally important in that it contributes significantly to understanding the firm as a whole. Therefore, conducting a study that helps dig deeper and help appreciate how individuals effectively adapt by shifting between the demands of both explorational and exploitative activities are necessary.

1.2 Research Motivation

Multiple factors, such as information technology, dynamics of the global competitive environment, and increased competition have increased the need for innovation, which creates a major competitive advantage for firms. Since ambidexterity is generally accepted as a contributing element in enhancing firm performance, the motivation behind this study stems from the limited number of studies that explore the role of employees who contribute significantly in shaping firms' ambidextrous capabilities and performance (Raisch 2009).

Although there is an increasing need to grasp the role of individual ambidexterity, there is limited literature on the subject. Mom et al. (2009) suggest that existing literatures focus mainly on firm level ambidexterity by analyzing managers' exploration and exploitation activities, while O'Reilly and Tushman (2013) noted that firm level ambidexterity does not only focus on exploration and exploitation but also on how managers can simultaneously compete in both existing and new markets. They further explained that firms competing in existing markets focus on control, efficiency and established technologies, while firms competing in new markets focus on flexibility, being autonomous, new technology and radical improvements. In lieu of limited study in the field, some scholars have called for further study on how a working environment promotes ambidexterity (Raisch & Birkinshaw, 2008), and explores how individual perceptions and preferences for both exploration and exploitation behavior impact innovation (Laureiro-Martinez et al., 2010). Hence, this study will broaden the scope of knowledge on the significance of the effects of ambidexterity on innovation at the individual level, and specifically in service firms. Additionally, it will enable managers and researchers understand how firms should make choices among competing demands in organizations, thereby boosting innovation among employees.

1.3 Problem statement

The main problem this study will address is that there is no clearly outlined relationship between how employees' daily task adaptation relates to firm innovation and how managers of SMEs allocate resources based on individual level capabilities in order to boost innovative performance in service SMEs. This leads to the main research questions;

1.3.1 Main research questions

- How does ambidexterity at the individual level influence innovative performance in SMEs?

This leads to the following sub-questions:

- a) What is the effect of individual-level exploitation and exploration behavior on innovative performance?
- b) Does organizational climate moderate this effect?

1.4 Research contributions

This study contributes to existing literatures in that it generates insight into ambidexterity in relation to employees' capabilities and innovation in SMEs by studying how individual exploration and exploitation work behavior stimulate innovation in SMEs. Again, the study generates insight into how ambidexterity measured independently (not the interaction effect of exploration and exploitation) influence innovative performance. This is expected to serve as a blueprint for managers in small and medium sized firms to effectively allocate resources based on employee potentials and performance. Again, it will enhance the understanding of the relationship between ambidexterity and individual capabilities that enhance innovation.

1.5 Research approach

This study is sectioned into chapters, with chapter one being the introduction. The second chapter is a review of literatures on current findings on the research topic. The first section of the review is focused on developing a theoretical framework of the subject matter. The second part of the review is guided by answering the research question based on the findings of previous studies. This will help articulate hypotheses and conceptual model that will outline various relationships between variables that will be tested in later chapters of this study. The third chapter outlines the research design employed by this researcher. Aspects such as the sample size, and frame, are explained in this chapter. Also, the method used to collect and analyze the data will be explained in chapter four. The subsequent chapters capture the result of the research, discussion and conclusion. The final chapter captures subjective interpretations of the results, implications of the study, limitations and recommendations for further research.

Chapter 2: Literature review

2.1. Antecedents of innovation

In ancient Roman myth, Janus, the God of beginning, transition, time, and ending is depicted as having two faces; one that looks to the future and the other to the past. Managers can somehow relate to this myth in that they constantly look back to review past processes while looking into the future to get a glimpse of innovations that will change the course of future business success. Joseph Schumpeter is believed to have been the first to use the term innovation in the industrial age. Born in the Czech Republic in 1883, Schumpeter's concept of innovation was a significant element explaining economic growth and development. In his thesis titled, "The Theory of Economic Development" (1934), Schumpeter asserted that the exclusion of innovative activities results in firms' stagnation. This assertion is commonly accepted in society today. Without innovation, development by individual firms and society in general stagnates.

According to Fagerberg, (2013), innovation is thought of by many as a driving force for economic and social change which is a combination of something that already exists; for instance, a process, product and or technology. Fagerberg (2013) explained that while invention is the initial step to introducing a new idea, innovation is the first attempt to implementing the idea. The Organization for Economic Co-operation and Development (OECD) defines innovation in its guidelines for collecting innovative data activities, known as the Oslo Manual, as;

"The implementation of new or significantly improved product (goods or services), a process, a new marketing method, or new organizational method in business practices, workplace organization and external relations" (OECD, 2005).

The OECD's definition highlights two essential points on innovation, which are implementation and newness as depicted by Fagerberg. Although innovation has gained significant attention among public debates and is perceived as a major contributor to change and development, this has not always been the case. Fagerberg, Fosaas and Sapprasert (2012) noted that innovation has grown significantly since its inception in the 1950s and most importantly in recent years. Innovation has been multidisciplinary, and its diverse facets has gained prominence in various literatures over the years. However, the origin of the subject stems from Joseph Schumpeter.

According to Fagerberg, Mowery and Nelson (2006), Joseph Schumpeter defined innovation as new supply sources, exploitation of markets, new products and new processes that firms adopt as an influential force for economic and societal growth. They argued that, beyond resource allocation, growth stems from appropriate recombination of existing resources. Although Schumpeter's work mostly focused on the role of individual entrepreneurs as a disruptive force to current activities, he later worked on the importance of innovation in large organizations, where he asserted that research and development in organizations is critical to their success over time (Fagerberg et al., 2005). Joseph Schumpeter also labelled innovation as new methods, the development of new markets and new sources of supply. He noted that innovation transform societies and economies thereby developing organizations as a whole. Confronted with rapid evolution of competitive activities in their markets, firms are beginning to grasp the important role of innovation in boosting strategic advantage that products and services offer. Drucker (1985) also defined innovation as a new process that helps improve and maximize utility. In this study, the researcher adopts the OECD Oslo Manual (2005) definition as a reference point to describe and classify innovation at the individual level in firms. OECD (2015) outlines four types of innovation, namely; marketing, product, process and organizational innovation.

OECD (2005), describes marketing innovation as related to implementing new marketing activities with regards to product design and packaging. The aim of this innovative approach is to better target customers by addressing customers' needs, which will in turn increase sales or growth for the firm. According to Kotler (1991), there is a strong relationship between marketing innovation with regards to pricing strategy, product design and promotion activities.

OECD (2005) explains that organizational innovation deals with implementing new techniques for business activities with regards to internal and external relations. Organizational innovation boost firm performance by reducing cost associated with transaction, job design and employee motivation as well as cost associated with supply. Consequently, organizational innovation is strongly associated with daily routines and procedures that foster information communication, learning, coordinating and teamwork among employees (OECD, 2015).

Finally, OECD (2005) describe process and product innovation as improving characteristics of products or its intended use based on existing skills. Akova et al. (1998) argued that, product innovation is difficult to implement among all types of innovation, in that it requires complex technology, addresses changing customer tastes and needs, deals with short product life cycles and fierce competition; hence, for firms to become successful, they must involve all stakeholders.

Fagerberg et al. (2004) again stressed that, while new products are perceived to be positively related to growth of income and employment, process innovation have unclear effect as a result of cost-cutting nature through elimination of unproductive processes used by firms. The next section examines innovation in the context of service firms and how innovation in service firms differs from manufacturing firms.

2.1.1. Innovation in service firms

As the service sector continues to grow rapidly, research has been focused on how service firms innovate and how service innovation differs from manufacturing. Miles (1993) introduced the concept of service innovation, while Barras (1986) discussed the concept of service innovation. The two argued on how information technology will revolutionize industries resulting in the use of information technology from small service firms to large service firms. According to Barras (1986), developing a theory of innovation in service that differed significantly from manufacturing was vital. He explained that the use of information technology in the manufacturing industry is significantly different and cannot be applied in the service firm. Several literatures focused on various aspects of innovation; some school of thought developed frameworks and theories pertaining to the service sector on the assumption that innovation is unique in service firms compared to manufacturing (Gallouj and Savona, 2009; Hipp and Grupp, 2005). Another school of thought posits that there is no significant difference between the two; hence, frameworks that apply to both can be developed and used (Castellacci 2008 and Drejer 2004).

According to Miles (2005), service innovation is basically technological in nature and information (IT) technology is noted to be critical to service growth. Hence small service firms invest heavily in IT than their manufacturing counterparts while large service firms invest in systems for analyzing and handling data. Hipp and Grupp (2005) argued that, since service is intangible in nature compared to product, innovation in the service sector is easily copied because service delivery mechanism is slightly different from each other making it difficult to standardize and patent. Djellal and Gallouj (2001) also contend that although innovation in service firms is difficult to patent and can easily erode competitive advantage, innovation in service firms is usually incremental in nature which implies that service firms can easily innovate in terms of reduced cost associated with incremental innovation.

Oke (2007) posits that service firms are more concerned with incremental innovation than with radical innovation. However, Tether and Tajar (2008) argued that since service innovation is continuous, incremental changes might not necessarily be considered an innovation in itself. Unless combined as a whole, they may not amount to innovation.

Based on these aforementioned literatures, it is clear that innovation in the service sector is very often incremental and continuous in nature.

Some researchers contend that service innovation does not necessarily bring about new products or processes, but rather new ways to organize in terms of allocating resources to employees (Camison and Monfort-Mir, 2012). Ojasalo (2009) added that service innovation is a skill used to anticipate changing trends in customer behavior in order to satisfy their needs and wants, while Den Hertog, van der Aa and de Jong (2010), define a service innovation as a new experience or solution. There are disagreements in existing literatures on the definition of service innovation. Although the existing literatures are not unanimous and interpret service innovation differently, various schools of thought capture the importance of technology and non-technology in service innovation processes. The literatures agree that service innovation is about creating value for all stakeholders by enhancing the offering, processes and business models to match the changing needs in business markets. It is also evident that service firms see innovation as an important activity to create strategic advantage, increase profitability and attain sustainable growth.

According to Voss, Johnston Fitzgerald and Brignall (1992), although innovation may enhance activities in service firms, the enhancement may not be directly comparable with innovation in manufacturing firms. Prajogo (2006) also noted that manufacturing firms are known to benefit more from technological innovations, compared to their service counterparts, since characteristics of services such as perishability, inseparability and heterogeneity are difficult to identify, and measure compared to manufactured products. Tether (2005) adds that the difficulty associated with measuring characteristics of service makes it unattractive for researchers to conduct innovation studies in that field since the lack of physical elements undermines the interest of researchers unlike products. Although characteristics of service may serve as a hindrance in service innovation, the trend may be changing considering the role and pace of changing technology across the globe. The next section will elaborate more on how ambidexterity at individual level can influence innovative performance in firms.

2.2. Organizational ambidexterity

The word ambidexterity is believed to have originated from the Latin word ‘ambidexter’ which literally means the ability to use both hands with ease. Theorists adopted the term to depict organizational behavior. According to various literatures, Duncan (1976) was the first to introduce organizational ambidexterity into the business literature, and he focused on structural assessment of the concept. He stated that for organizations to be successful, they needed to consider different structures that will help introduce or implement innovation (Venkantraman, Lee and Iyer, 2007). Although Cao, Gedajlovic and Zhang (2009) stated that there is an increasing interest in literatures in organizational ambidexterity, the theoretic nature of the subject is still blurred and presents various disagreements. Adler, Goldoftas and Levine found in 1999 that there was no consistent definition on ambidexterity thereby contributing to the ambiguity surrounding the subject (Simsek, Heavey and Souder, 2009). In recent years however, there has been a surge in the interest of the concept of ambidexterity and this can be largely attributed to the contribution of various writers from fields such as strategic management, organizational learning, etc., discussing how ambidexterity has evolved by focusing mainly on the contradiction between alignment (exploitation) and adaptation (exploration).

2.2.1. Ambidexterity defined

While O’Reilly and Tushman (2011) compare organizational ambidexterity to the ability of firms to analyze and employ resources and skills in strategic ways that can create value and at the same time, be difficult for competitors to emulate, Teece, Pisano and Shuen (1997), noted that firm capability is influenced by changing environmental conditions and appropriate allocation of firm resources is necessary to match the conditions in the environment. According to Birkinshaw and Gibson (2004) ambidexterity is the ability of firms to pursue both short and long-term development of markets, products and technologies through coordination of activities. However, Brunner, Staats, Tushman and Upton (2008) argued that only disciplined firms are successful with ambidexterity, since the pursuit of success in the short-term may undercut capabilities for long-term survival. Hence, firms are faced with the challenge of exploiting current resources while adapting to the radical changes in the environment and exploring new competencies for survival. Ghemawat and Costa (2005), added that firms that concurrently pursue exploration and exploitation get stuck and fail to achieve both strategies, thereby losing their competitive advantage. This was confirmed by Ebben and Johnson (2005) when they found in their research that firms who focus on both exploration and exploitation perform worse compared to those who focus on either one. In spite of this, the radical nature of technological change in the environment makes it difficult for firms to choose between exploitation and exploration successfully. In the context of organizational theory, Ahuja and Lampert (2001)

found that firms that pursue either strategy may enhance their short-term survival but may fail to sustain. Levinthal and March (1993) noted that the key to firm sustainability is balancing the engagement in exploitation for current firm viability and exploration to ensure future viability. Jansen, van den Bosch and Volberda (2008) suggest that firms pursuing ambidexterity obtain high financial performance as Levinthal and March (1993) found in their study. Jansen (2008) explained that focusing on both strategies helps firms overcome structural inertia on the one hand, but on the other hand, firms are so engulfed in the process that they fail to monitor their benefits thereby confirming the study of Tushman and O'Reilly (1996). In this conceptualization, it has been established that there are different views on ambidexterity but there is an agreement among various studies on the definition. The studies also found that ambidexterity does not only entail structural changes but also entails competencies, flexible systems, organic managers and friendly cultures to boost employee participation and performance in firms. The next section explores ambidexterity at the individual level and how it influences performance. themselves in the future.

2.2.2. Employee (individual) ambidexterity

Kobarg, Wollersheim, Welpé and Sorrlé (2015) define employee ambidexterity as individuals' pursuing exploration and exploitation activities. They explained that exploitation focuses on existing opportunities while exploration focuses on new opportunities. According to Birkinshaw and Raisch (2008), literature on individual level ambidexterity is limited, resulting in a lack of understanding of how ambidexterity at the individual level influences organizational ambidexterity and overall performance. According to Gibson and Birkinshaw (2004) employees have the ability to simultaneously deliver value in specific functional areas while adapting to changes from the environment. Raisch, Birkinshaw, Probst and Tushman (2009) found that organizational ambidexterity is a result of interlinked individual and firm factors. Hence, the skill of employees will positively correlate with firm ambidexterity implying its (employee ambidexterity) importance in organizational growth, development and sustainability. Some literatures have addressed individual level ambidexterity: among them are Mom et al. (2007, 2009), who found that ambidexterity can be pursued at both firm and individual levels. However, two major limitations were found in their study; firstly, they analyzed individual level ambidexterity on a perceptual scale rather than investigating the actual behavior from employees. Since individuals are the main architect of firm activities and face challenges of meeting job demands, it is important to understand how they switch between different tasks in order to meet general goals set by firms.

A second limitation of Mom et al. (2007, 2009) is that they failed to address the influence of personal traits on ambidextrous behavior. Since some variables in their study was significant, recent studies have delved into the influence of traits. Brusoni, Laureiro, Martinez and Zolla (2010) from neurological perspective found in their study that individual ambidexterity does not necessarily deal with allocation of exploration and exploitation tasks, rather it is concerned with how decision makers are able to change individuals' scope on the performance of various tasks in terms of general task focus (exploration behavior) or specific task focus (exploitation behavior). Jasmand, Blazevic and de Ruyter (2012) also posit that the individual's ability to be efficient at their daily activities depends on job design, motivation, support, training and teamwork. They further explain that the interaction of the above elements facilitates ambidextrous behavior if the behavior blends well with performance assessment (goal achievement, level of critical thinking, adaptability). These studies provide a clear view on how individuals' behavior influences ambidexterity and sheds light on the sub-research question: What is the effect of individual-level exploitation and exploration behavior on innovative performance? The next section examines whether the size of a firm plays a role in firms becoming ambidextrous.

2.2.3. Influence of size

The Organization for Economic Co-operation and Development (OECD, 2000) defines a small and medium sized enterprise as a non-subsidary and autonomous firm that employs a certain number of employees under a given number or threshold. The threshold however varies from one country to another. According to OECD (2000), the upper limit of threshold is 250 employees across The European Union (EU) while some nations set the limit at 200 or less employees. Conversely, there are other criteria used to define SMEs. For instance, in the EU an SME must have an annual turnover of EUR 40 million or less and a balance sheet exceeding EUR 27 million (OECD, 2000). OECD further expounded that, SMEs account for over 95% of firms and about 70% of employment in OECD economies. As a result of globalization and technological improvements, even though these SMEs face challenges such as financial, exploiting innovative capabilities among others, the possible contribution of SMEs to economies is enhanced. There has been controversy surrounding the question of whether size has any influence on innovation. Literatures are divided on the subject owing to the fact that, some schools of thought suggest that size is positively related to innovation. Large firms have large R&D staff which help firms to boost their technological knowledge and capabilities. Other schools of thought argue that small firms are flexible; hence, they have greater advantages for innovation since they are able to adapt quickly to environmental changes (Kanter, 1985). He further

explained that SMEs have flat organizational structures which help in easy decision making and implementing changes. While Dampour (1992) found that firm size has a positive relationship with innovation in manufacturing rather than in service firms, Tether (2005) also found that there is a positive correlation between firms and innovation for some sampled firms in Europe, but the findings were in favor of manufacturing and not service firms.

2.2.4. Sub-research questions and theoretical framework

The research question(s) and theoretical framework that guides this study are:

1. What is the effect of individual-level exploitation and exploration behavior on innovative performance?
2. Does organizational climate moderate this effect?

Figure 1 illustrates the theoretical framework that guides this thesis.

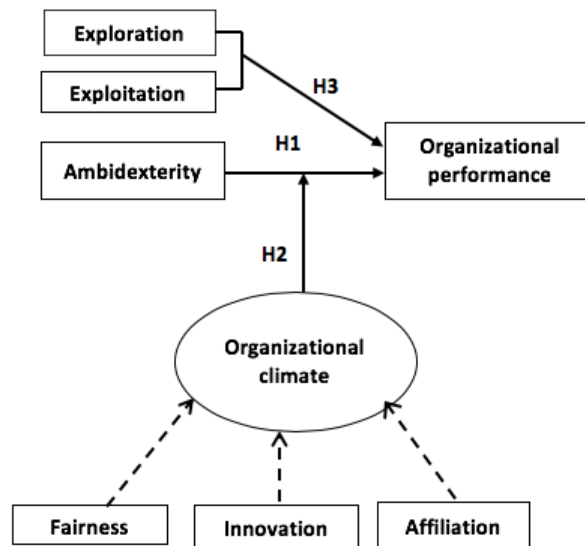


Figure 1: Conceptual model

2.3. Effects of individual exploration and exploitation on innovative performance

Various studies found that innovation is characterized by tensions and contradictions (Benner and Tushman 2003; Dahler and Green 2002; Gino and Argote 2011). With inconsistencies in the literature, Boerner and Kearney (2010) suggest that strategy that integrates both exploration and exploitation should be integrated in order to absorb the negative effects of an exclusive focus on exploration and exploitation strategies. Birkinshaw and Gupta (2013) added that a strong exploitation strategy might create confusion, while strong exploitation might create some form of rigidity in

adapting strategies, thereby making it impossible to adopt either strategy. According to Mom et al. (2009) exploration behavior includes experimenting, discovering and searching for new opportunities while exploitation behavior includes implementing, improving or refining existing systems. Comparably, Frese and Bausch (2011) explained individual exploration (non-managerial) as behavior related to experimentation, finding efficient ways to complete tasks, making mistakes and learning from the mistakes. They further explained that individual behavior at this level is characterized by deviating from routines and not following the status quo. In contrast, individual exploitation follows past experiences, and incremental improvement of routine activities. Jasmand et al. (2012) found in their conceptualization of individual ambidexterity in a customer service representative context that employees can simultaneously engage in service requests (exploitation) while discovering new customer needs (exploration). They found a positive relationship between individual ambidexterity and performance. This section again sheds light on the sub-question: What is the effect of individual-level exploitation and exploration behavior on innovative performance?

Similarly, Good and Michael (2013) conceptualized individual ambidexterity as a practice that uses divergent thinking (exploration), focused attention (exploitation) and cognitive flexibility (ability to switch between exploration and exploitation). In their study, they found a positive relationship between individual ambidexterity and innovation in firms. A recent study by Zacher, Robinson and Rosing (2016) found a positive relationship between the multiplication effect of both exploration and exploitation in that innovative performance was high when both exploration and exploitation behaviors were high. This behavior, they argued, includes employee autonomy in decision making, flexibility in their work environment and support from management. This section again sheds light on the sub-research question: What is the effect of individual level exploitation and exploration behavior on innovative performance? Based on the aforementioned studies, the writer suggests that ambidexterity at the individual level is significant for innovative performance. From the above perspective, the writer hypothesizes:

H1: There is a positive relationship between exploration and innovative performance

H2: There is a positive relationship between exploitation and innovative performance and

H3: Organizational climates moderate the positive relationships between ambidexterity and innovative performance.

Balance and imbalance in exploration and exploitation is measured on a five-point Likert scale describing to what extent exploration and exploitation are used by employees. An equal score will represent a balance while discrepancy represents imbalance. Thus, the writer assumes that individuals need to strike a balance between exploration and exploitation in order to increase innovative performance.

2.4. Organizational climate

Studies on innovation, leadership and organizational culture recommends investigating the relationship among the above-mentioned variables in order to improve the understanding of factors that influence innovation in firms. In an attempt to understand the relationship between innovation, leadership and organizational culture, some literatures have identified fitting leadership style that promote innovation. McClomb (1998), Coopey (1987), and Van de Ven (1986) suggest democratic, participative, collaborative and supportive leadership styles have positive influence on innovation. Although organizational culture and organizational climate seem to overlap and are used interchangeably, there are clear differences between the two. On one hand, organizationl culture is associated with values, assumptions and core beliefs deeply rooted in the organization while organizational climate incorporates elements that are easily identified and changed in the firm. (Dennison, 1996). Bock et al. (2005) identified such elements as innovativeness, fairness, affiliation, top management support and sense of ownership.

Beer (1971) defined organizational climate as a set of attributes pertaining to an organization or its subsystem, which shape the way that organization relates to its members and environment. Patterson et al. (2005) describe organizational climate as how employees view their working environment in terms of policies, practices and procedures employed for work purposes. Castro and Martins (2010) found in their study that organizational climate portrays the feelings and opinion of members of a firm confirming the findings of Patterson et al. (2005). Other studies noted that organizational climate is a shared perception and meaning ascribed by a firm's policies, processes and practices employees experience in the firm (Schneider and Reichers, 1983; Ostroff et al., 2003; and Schneider et al., 2011).

While the above definitions reflect various aspects of organizational climate, the writer adopts Beer's definition. Innovativeness is risky, and employees should be willing to embrace taking risks or failure and since the environment and managerial behavior influences risk-taking, employees will take more risk if they are given the opportunity by management. Management needs to take employees' level of risk-taking into consideration in order to better allocate scarce resources. Joseph and Jacob (2011) found in their study that organizational climate impacts employee innovation. They explained that a conducive climate enables information sharing, and improves skills and creativity geared towards innovation. They identified three aspects of organizational climate namely; fairness, affiliation and innovativeness. This sheds light on the sub question: Does organizational climate moderate this effect?

2.4.1. Fairness

According to Bock et al. (2005), fairness describes equitable practices that avoids doubt, conflict and builds trust among members. Burges (2005) also noted that employees who perceive they are being treated fairly are willing to contribute more and have a high tendency to engage in activities such as knowledge sharing. The writer therefore theorizes that fairness climate in a firm encourages employees to share information thereby boosting innovative behavior in the firm.

2.4.2 Innovation

Studies have found that, for organizations to be innovative, members of the organization must encourage free flow of information, encourage reasonable risk-taking, have flexible working activities, and lay emphasis on organizational learning (Bock et al., 2005; Roth 2003; and Hult 1998). Hurley and Hult (1998) noted that innovative employees are able to anticipate changes in the environment, recognize creative ideas and share their creative idea with the entire firm. Innovativeness from this perspective is partly achieved by developing skills and improving established processes through learning and accumulated experiences.

2.4.3. Affiliation

According to Bock et al. (2005), organizations where personal affiliation flourishes is known as a state where a "sense of togetherness" abounds and social behavior is shared amongst members of an organization. Chay et al. (2005) contend that affiliative behavior fosters a feeling of closeness among members of a firm. Bock and Kim (2002) added that strong affiliation compels employees to go beyond their responsibilities and help other members in the firm. They further noted that, members with strong affiliation are able to build a strong bond and attachment with others. Cardador and Pratt

(2006) found in their study that strong bond among member's leads to information sharing. However, Ardichvili et al. (2006) oppose the findings of Cardador and Pratt (2006) on the basis that individuals with low affiliation may not be willing to share information even if they belong to a work group that is highly collective, hence organizations should ensure strong sense of affiliation among all members.

2.5. Summary

The literature review explored studies related to innovation in organizations and considered how ambidexterity at individual level in a firm impacts SMEs. The literature review started with a broad view on innovation in the organization particularly in the context of service firms. The review also considered the role of firm size in innovativeness of employees in firms. Two conclusions were drawn after the review.

First, studies have shown diverse views in theories associated with innovation effort in large and small firms that emerged from organizations themselves and the environment in which they operate. These diversities the writer observed stemmed from different theoretical perspectives and operationalization of construct measured. Another lens of literature however agreed on the significance of innovation especially in firms. It is evident in the literature that service innovation is about anticipating, process change, enhancing services and products, profitability, and satisfying customer needs thereby creating strategic advantage for all stakeholders in a way that competitors cannot duplicate.

Secondly, the literature noted that while innovation is highly significant in creating competitive advantage for service firms, the characteristics of service itself serve as a hindrance for service innovation garnering support from academics and managers at large. Particularly, SMEs due to their size have less market power and resources needed to develop their competitive advantage (Corner, 2002). The literature confirmed that resource constrained SMEs can develop their competitive advantage through ambidexterity and enhance innovative performance of individuals and the firm as a whole, (Coleman, Cotei and Farhat, 2013). It has been established that ambidexterity requires not just structural changes but competencies, flexible systems, organic managers and a friendly culture to boost employee participation and performance in firms. It is therefore important to investigate the variables and conceptual model in this research as it relates to how ambidexterity at individual level can improve innovative performance.

Chapter 3: Research Methodology

3.1. Introduction

The chapter describes the methodology employed to collect data for this study. According to Saunders et al (2009) understanding the research method is important in that it helps the researcher to be well informed. In order to test the research model (*Section 2.2.4*), answer the main and sub-research research questions (*section 1.3.1*), and ultimately solve the hypotheses, it is important to outline a blueprint to guide this study. Accordingly, the chapter focuses on the research design, sample and data collection, operationalization of the variables, and method of analysis employed by the researcher.

Johnson, Cassell and Symon (2006) noted that a study is usually based on a hypothesis regarding relationships among concepts. In order to test these relationships and answer the research question (s), it is crucial to outline an appropriate paradigm that helps the researcher to successfully achieve the research objective (s). The majority of marketing research associated with innovation adopts a positivist view, which means most studies are quantitative in nature and use a survey technique. Positivist views generate testable hypotheses based on facts (Bryman 2000). The focus of this research is to test relationships between ambidexterity and individual innovative performance. Therefore, the researcher adopts a positivist approach in a deductive fashion.

3.2. Research design

Since this study is deductive in nature and seeks to test various relationships between ambidexterity and individual innovative performance, case study will not yield an appropriate result in that, case study is normally used in qualitative research to explore and explain ‘why’ questions. Quantitative on the other hand is employed to explain what relationships exists between constructs. According to Churchill (2005), cross-sectional and longitudinal designs are leading forms of research design for examining the relationship between variables in marketing research. Since this study does not focus on before and after effect of the variables under study, a cross-sectional (one-time data collection) is considered appropriate to examine the relationships aforementioned. Existing literatures suggest that ambidexterity and innovation studies have followed cross-sectional design for data collection (Wang and Rafiq, 2014; Chang and Hughes, 2012) in that researchers focus on the short-term effect of ambidexterity on performance. Therefore, the cross-sectional approach is considered appropriate in providing valuable additions to existing literature.

3.3. Sample and data collection method

This research drew a sample from a population of service SMEs from various service sectors across Belgium based on the classification of Organization by Economic Co-operation and Development (OECD, 2005). The researcher used various service sectors in order to increase the sample frame and increase the generalizability of the results. Since SMEs have varying characteristics, this study employed some criteria based on the OECD definition of SMEs presented in Table 1. A total of 350 SMEs was selected and a total number of responses of 115 was received.

Table 1: Criteria for selecting SMEs (adapted from OECD, 2005)

Characteristics of SMEs	Small firm (min.) medium firm (max.)
Number of employees	Minimum 5, maximum 250
Annual turnover	Less or equal to 40 million EUR
Net income	27 million EUR

As stated earlier, a **cross-sectional** design is considered appropriate for data collection. In choosing a feasible data collection method, Churchill (1995) noted different survey-based data collection techniques including; telephone interview, face-to-face interview, online survey and mail questionnaire. Based on factors such as time, number of firms selected, number of questionnaire and other resources needed, face-to-face interview and telephone interviews are not appropriate for this study. Using a self-administered questionnaire is considered suitable, based on some of its advantages which include: quick, cost-effective, and absence of the interviewer makes respondents more comfortable.

However, low response rates and missing data can pose a risk to the research. In order to address some of these risk factors, an online questionnaire (through Qualtrics) is used to administer questions to respondents. Irrespective of some drawbacks associated with the online questionnaire technique, disadvantages such as a low response rate associated with the method are significantly reduced if the questionnaire is well designed. Also, using existing items helps overcome challenges of validating the questionnaire. The use of emails and social media (LinkedIn) was employed for the distribution of the survey and anonymous link was used at the request of some respondents through Qualtrics with a short description of what the research is about and time needed to complete the survey.

3.4. Variable operationalization

The construct in this section is measured based on existing literature that developed and tested the scale used. A five-point Likert scale (1, strongly disagree; 5, strongly agree) was employed. Respondents were asked to choose from the given scale the extent to which they agree or disagree to an item or activity. The survey covered the following variables;

3.4.1. Independent variables: ambidexterity, exploration and exploitation

Exploration and exploitation constructs related to individuals (employees) were measured using the scale developed by Mom, Van Den Bosch and Volberda (2007). The measure captures the extent to which individuals are allowed to propose changes in daily routines, the level of risk taking in their firms, information sharing and level of implementation of suggested ideas in their firms. The measures focus on the extent to which individuals depart from the status quo of the firm and pursue new knowledge (exploration) and the extent to which they share tacit knowledge in order to meet the demands of the firm.

3.4.2. Dependent variable: firm innovative performance

To measure innovation performance at the firm level, a five-point Likert scale from Janssen (2000), who based his study on the work of Bruce and Scott (1994), and Prajogo and Ahmed (2006) is employed. The scales consist of process and product dimensions of innovativeness with regards to speed of innovation, the level of newness and being first in market. Individuals were asked to rate how often they performed innovative activities. For instance, how, improved daily routines help the firm to save money, how often the firm introduces new products and services, etc.

3.4.3. Moderating variable: organizational climate

The measurement scale is based on Bock et al. (2005) and uses a 5-point Likert scale. Organizational climate, specifically fairness, affiliation and innovativeness are measured with a total of 12 items, adapting the work of Molly and Derek (2014). Participants are asked to scale perceived benefits of organizational climate variables in relation to tasks performance. Example items such as how fair-minded managers are when resolving conflicts, the level of collaboration in achieving set goals, how often employees adopt new processes in performing their daily routines, etc.

3.4.4. Potential control variables: firm size and level of education

In order to account for alternative explanations with regards to exploration and exploitation behavior, the researcher collected data on three control variables; age, experience and level of education. Age of the organization, level of education and how long an individual has been in a firm. These variables may influence ambidextrous behavior in that, the longer people stayed with a firm the more they become efficient due to learning in the organization. (Hunter and Thatcher, 2007). Mom et al. (2009) found that age is positively related to ambidextrous behavior. Level of education is also considered important in that it might have an influence on innovative behavior as a higher level of education implies more knowledge (Janssen, 2000).

Chapter 4: Data Analysis

4.1. Introduction

This chapter presents and analyzes the data collected from the 121 sample-respondents, based on the hypothesis guiding this research. The first part of the chapter focuses on Factor Analysis (FA) in order to gain insight into the structure of the data collected and determine whether or not the data is reliable for further analysis. The second part of this chapter uses Multiple Regression Analysis (MRA) to test the hypothesis and further answer the sub and main research questions. Three hypotheses will be tested to determine the acceptability of the hypotheses or otherwise.

4.2. Factor Analysis

Factor Analysis has been partitioned into three parts. First, a preliminary analysis was conducted to justify the use of FA. The second part will focus on extraction of the factors and finally rotation and further analysis of the factors to be selected and tested for reliability of the data based on Cronbach's Alpha.

4.2.1. Preliminary analysis

According to Field (2005), a good factor analysis should be correlated but necessarily perfectly correlated. The correlation matrix in (Appendix A) indicates no coefficient is recorded above 0.9 which implies the variables are moderately correlated.

At the preliminary stage, an additional test, Principal Component Analysis (PCA), was conducted to determine the Eigenvalue which helps to determine further analysis. Appendix B shows a table for total variance explained. The table shows a total of 6 factors with eigenvalue considered to be greater than 1.

Appendix C provides the summary statistics on communalities. The table shows component and extraction communalities which indicates variations in the variables. Keiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity and checking the anti-image correlation and covariance matrices (Field, 2006). KMO measure should be greater than 0.5 to be accepted. Again, Bartlett's test of sphericity needs to show a significance of 0.05 to proceed with further analysis. As shown below, in tables 2 and 3, the SPSS output justifies the decision to proceed with the factor analysis.

Table 2: Component Correlation Matrix

Component	1	2	3	4	5	6
1	1.000	.083	.375	.431	-.366	-.253
2	.083	1.000	.218	.138	-.293	-.097
3	.375	.218	1.000	.316	-.363	-.317
4	.431	.138	.316	1.000	-.392	-.327
5	-.366	-.293	-.363	-.392	1.000	.192
6	-.253	-.097	-.317	-.327	.192	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	2492.372
	df	465
	Sig.	.000

4.2.2. Factor Extraction

Preliminary analysis of the data yielded six factors based on Kaiser's criterion of retaining eigenvalues greater than 1.0 (Field, 2005) (See Appendix B: Scree plot). The total eigenvalue is 70.457%. The first, second and up to sixth factor show the following percentages respectively 44.521% (Organizational climate), 7.808% (Affiliation), 6.082% (Ambidexterity), 5.065% (Exploration), 3.647% (exploitation) and 3.352% (FIP), implying the total variance accounted for by the variables. The preliminary analysis also indicated that 13 were loaded unto 13 factor structure. While the items were not deleted, they were assigned to components with the highest value. Based on the weak correlation among constructs, Varimax rotation in the FA and subsequently for further analysis. Coakes and Steed (2007) noted that rotation does not change the fundamental explanation, rather it indicates patterns of relationship that makes interpretability more meaningful.

4.2.3. Factor Rotation and Analysis

To proceed further with the factor analysis, six factors were selected based the eigenvalue. As stated above, orthogonal rotations (varimax method) is used to proceed with analysis since the correlation is weak. Varimax rotation method is considered to be the best, since it helps create better interpretable groups of factors (Field, 2005) (See Appendix C). In the six-factor structure of assessing the influence of ambidexterity on firm innovative performance, is shown in table 4:

Table 4: Rotated component matrix

Factor 1: Organizational climate items	Component value
My organization helps employees to find a balance between family life.	.763
I can easily suggest new ideas affecting my work activities to my supervisor.	.728
My colleagues will always help me if I need help to perform a task.	.700
Management is strongly focused on solving customer problems instead of finding faults with employees.	.618
My firm encourages employees to adopt new working methods to the best of their abilities.	.581
Management is mostly able to identify customer problems by collecting information from various sources.	.546
Our firm frequently implements new ideas that focus on efficiency (quick) in serving customers.	.516
The management system in my firm works coherently to support the overall objective of the firm.	.503
Factor 2: Affiliation items	Component value
1. My colleagues will always help me if I need help to perform a task.	.806
2. My colleagues always recognize individual contributions.	.777
3. I have easy access to information from my team members when necessary.	.692
4. I often work together with my colleagues to share ideas in order to resolve issue	.575
5. I always share ideas with my colleagues on how to improve my work activities.	.516
6. <i>In our firm, we always introduce a high number of new product/services.</i>	.509
7. <i>My team members often work with different teams in order to solve problems of conflicting objective.</i>	.412
Factor 3: Ambidexterity items	Component value
1. As part of my daily activities, I frequently acquire entirely new skills for solving customer problems while upgrading existing skills for the same task	.675
2. As part of my daily activities, I frequently explore new customer needs while improving the needs of existing customers for product / service	.658
3. I often adapt my approach to work in a way that saves the firm money.	.594

4. I frequently introduce new process (method) for conducting daily tasks that are generally accepted by firms	.581
5. I frequently participate in firm activities that present potentially new projects.	.515
Factor 4: Exploitation items	Component value
1. Activities of which a lot of experience has been accumulated by yourself.	.776
2. Activities you can properly conduct using your present skill	.766
3. Activities primarily focused on making money for the firm.	.696
4. My team members always show their expertise by sharing technical skill	.533
Factor 5: Exploration items	Component Value
1. Searching for new possibilities with respect to products / services / processes.	.764
2. Activities requiring much flexibility from your side.	.699
3. Activities requiring you to learn new skills.	.615
4. Activities requiring you to share information with your teammates	.433
Factor 6: Firm innovative performance	Component Value
1. Activities primarily focused on achieving short-term goals.	.857
2. Our firm frequently makes resources available for new (new method of working) activities with no certainty of success.	.829
3. Innovation (a new method of working) in my organization is perceived as too risky.	.509

4.3. Reliability

To confirm the reliability of the six-factor variable, the researcher conducted a reliability test for all six-factor variables used in this analysis. Table 5 shows Cronbach's alpha test. Based on inter-item correlation, Pallant (2005) noted that a scale greater than 0.7 Cronbach's alpha is required to determine the reliability. The six factors indicate a higher range between .758 and .905. the Cronbach's alpha the reliability of the items measuring the constructs organizational climate, affiliation, ambidexterity items, exploration items, exploitation items, and firm innovative performance ranges from 0.905, 0.877, 0.851, 0.849, 0.825, 0.758 respectively. As shown in table 5 below:

Table 5: Cronbach's Alpha for Each Element of measuring firm innovative performance instrument

Factors	Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
Organizational climate	0.905	0.910	8
Affiliation	0.877	0.879	7
Ambidexterity	0.851	0.853	5
Exploration	0.849	.0850	4
Exploitation	0.825	0.832	4
Firm innovative performance	0.758	0.757	3

4.4. Descriptive statistic and correlation

The sample size is 116 respondents. Table 6 shows the descriptive statistics for the variables used in this study. The first column contains the dependent, independent and moderating variables. Columns 2 and 3 show the mean and standard deviation of the variables respectively. Column 4 shows positive and significant correlation between firm innovative performance and all the predictor variables except two control variables - gender and firm age. Gender is negatively correlated with a p-value between 0 and 1, this infers no significant association between firm innovative performance and gender.

Section 4.4.1. Mean, Standard deviation and correlations

Table 6: Correlation matrix (multiple regression)

Variable	Mean	S.d.	1	2	3	4	5	6	7	8	9	10
Firm innovative performance	3.30	0.74	1									
Ambidexterity	3.58	0.68	.676**	1								
Exploration	2.87	0.84	.535*	.618**	1							
Exploitation	2.99	0.80	.466**	.551**	.631**	1						
Fairness	3.66	0.69	.624**	.621**	.505**	.514**	1					
Affiliation	3.55	0.66	.587**	.626**	.505**	.622**	.637**	1				
Innovation	3.52	0.67	.589**	.717**	.613**	.572**	.713**	.684**	1			
Gender	0.62	0.48	-.065	-.027	-.062	.079	.025	-.058	-.065			
Education	2.18	0.87	.382**	.476**	.574**	.555**	.509**	.515**	.474**	1		
Firm Age	2.23	0.83	.161	.231*	.338**	.371**	.324**	.378**	.314**	.570**	1	
Job length	2.12	.815	.254**	.369**	.309**	.184*	.294**	.238*	.251**	.270**	.447**	1

Note: N = 116

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

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

Based on a thirty-item questionnaire with a five-point Likert scale, the graphs below depict responses from all the categories of the variables measured in percentage. Figure 2 illustrate the background information of respondents. The figure shows majority of respondents are male (61%) with the highest level of education being university level (49%). Majority of the respondents work in a firm that is 7 years and above.

Section 4.4.2: Respondents background information.

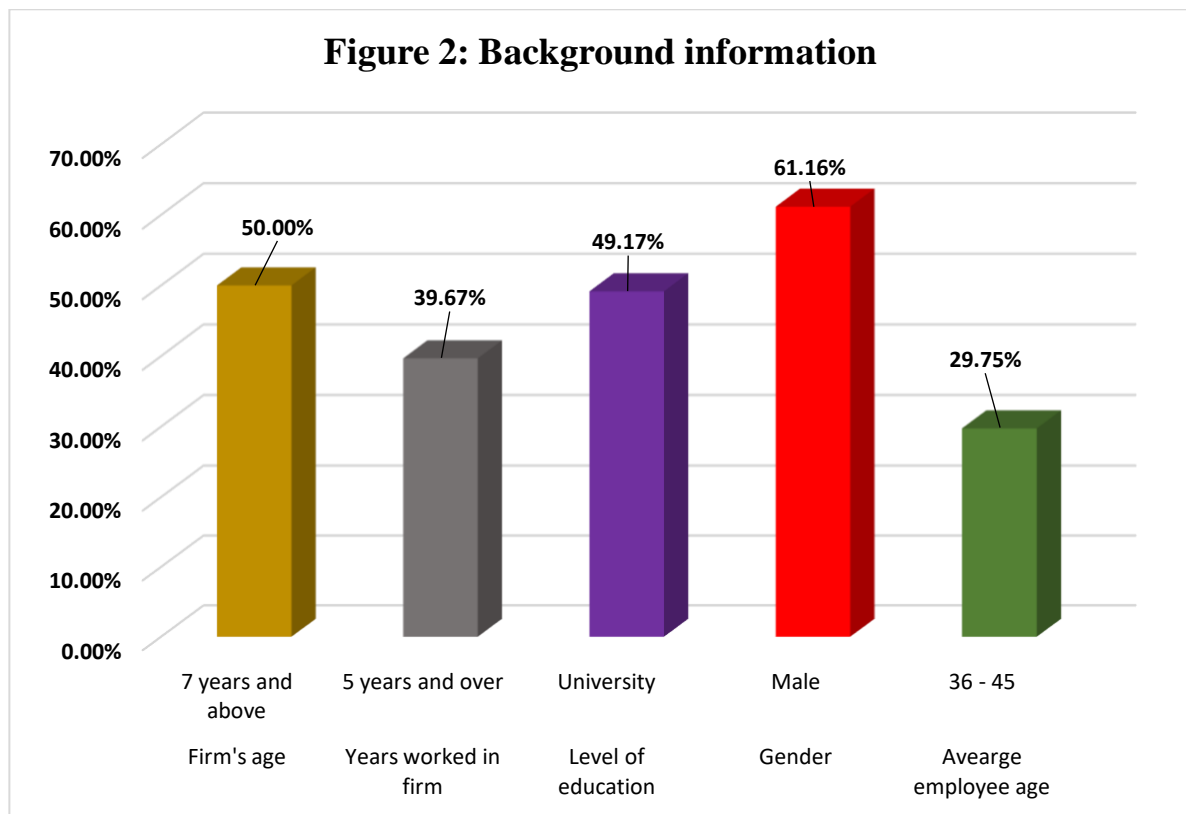
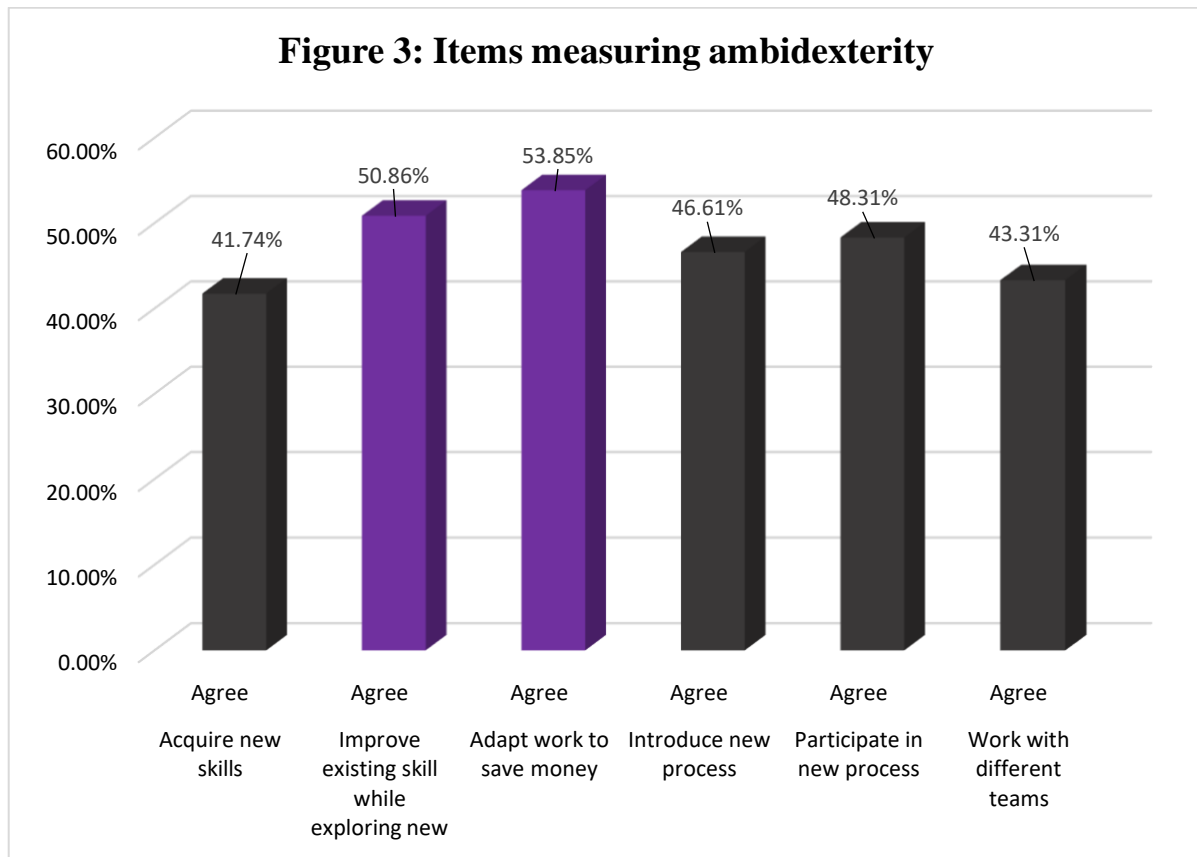


Figure 3 shows responses for one of the independent variables (ambidexterity), of employees who combine both exploration and exploitation in performing their daily activities. Approximately 54% of respondents adapt their tasks in order to reduce cost in their firms while 42% acquire new skills in order to perform their daily tasks.

Section 4.4.3: Items measuring ambidexterity



The dependent variable (firm innovative performance) is measured with five items focusing on how easy firms make resources available to employees, the risk tolerance level of the firm, speed employed to introduce new processes or services etc. About 52% agreed on the introduction of new services and products while and 50% agreed their firms implement new ideas aimed at serving customers efficiently as shown in figure 4.

Section 4.4.4: Items measuring innovative performance.

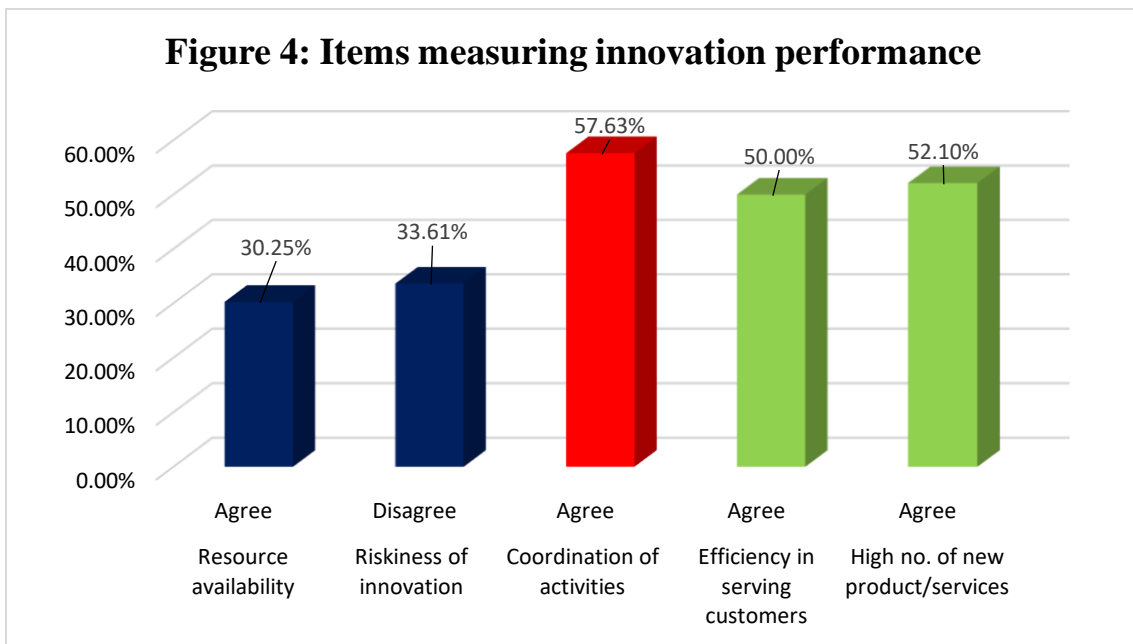
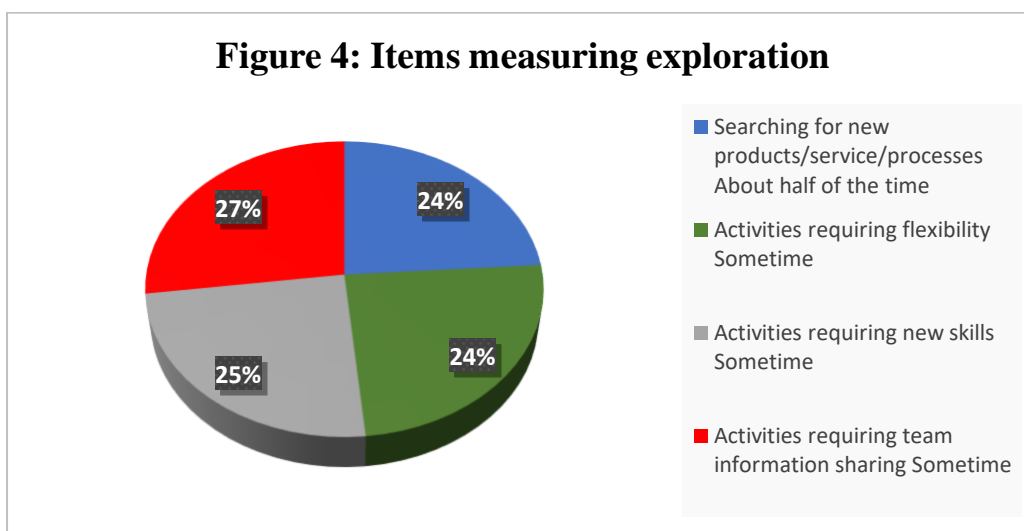


Figure 4 illustrates the distribution of responses recorded for a second independent variable (exploration). Compared to the aforementioned distribution, exploratory items recorded low response rate for all the four measuring items. This implies that other items on the five-point scale recorded sizable responses.

Section 4.4.5: Items measure exploration



To measure the moderating variable (organizational climate), twelve items were used on a five-point scale. Figure 5 shows responses for fairness with majority of responses on unbiased conflict resolution system making up 66% of the response rate.

Section 4.4.6: Items measuring fairness

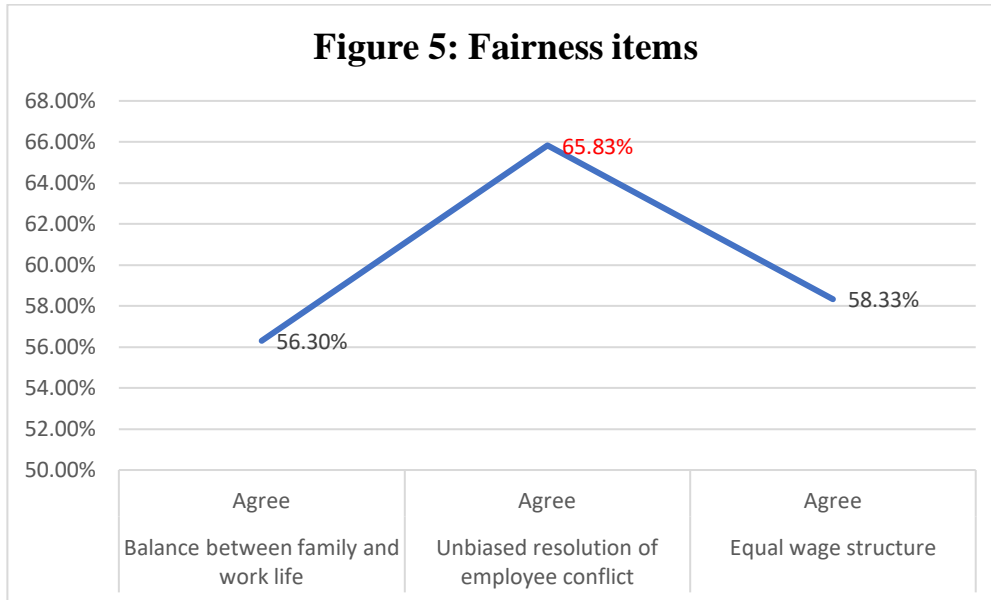
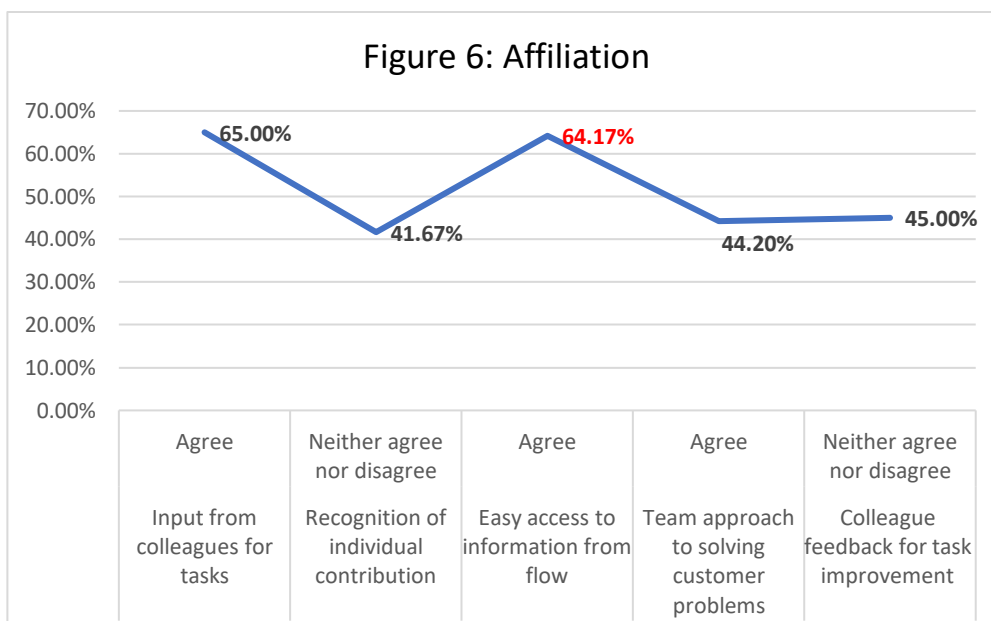


Figure 6 depicts responses on affiliation as one of the variables under organizational climate, the figure shows a high response rate for items such as access to information from colleague employees and input from colleagues with regards to completing tasks (teamwork). On average, response rate for recognition of employee contribution and receiving feedback from colleagues were 42% and 45% respectively.

Section 4.4.7: Affiliation measurement items



Section 4.5.: Multiple linear regression analysis

The second part of this chapter uses multiple linear regression analysis of the established hypotheses to test the relationship between the independent and depend variables. Based on the results, the hypotheses are either confirmed or rejected.

There are three regressions in this section, Regression 1, 2 and 3. Regression 1 run ambidexterity (IV) on firm innovative performance (FIP). The objective is to determine separately the extent to which the items measuring ambidexterity directly influence FIP and thereby answer H1. Regression 2 includes all the independent variables except ambidexterity. The objective is to have the best predicting powers of the effect of exploration, exploitation, and the control variables thereby answering H2. Regression 3 uses hierarchical regression which includes all the variables in a hierarchical order. The moderator is included in this section. The aim is to present how each model is related to the dependent variable (FIP) consequently answering H3. The second section begins with a descriptive of the sample.

4.5.1. Regression 1: Ambidexterity and firm innovative performance

H1: There is a positive relationship between individual ambidexterity and firm innovative performance.

Table 7: Perceived ambidexterity model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.676 ^a	.458	.453	.54552
a. Predictors: (Constant), Ambidexterity				

The results testing the relationship for the first hypothesis is presented in table 7, 8 and 9 respectively. The dependent variable is firm innovative performance and the predator variable is ambidexterity. The model summary in table 7 shows that the correlation coefficient is 0.676 which implies a relatively strong and positive relationship between ambidexterity and firm innovative performance. However, only 45% of the variation in firm innovative performance is explained by ambidexterity which implies that more than half of the variation in the dependent variable is unexplained.

Table 8: ANOVA for individual ambidexterity

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.623	1	28.623	96.182	.000 ^b
	Residual	33.926	114	.298		
	Total	62.549	115			

a. Dependent Variable: Firm Innovative Performance
b. Predictors: (Constant), Ambidexterity

The analysis of variance result is presented in table 8. Given an F-value of 96.182 and a p-value of 0.000 implies that the model is statistically significant hence a significant proportion of ambidexterity explains firm innovative performance.

Table 9: Ambidexterity coefficient

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.702	.270		2.598	.011
	Ambidexterity	.725	.074	.676	9.807	.000

a. Dependent Variable: Firm Innovative Performance

The standardized coefficient in table 9 illustrates the relatedness of ambidexterity to firm innovative performance with a beta (0.676, $p < 0.000$) which is statistically significant at all significant levels. However, this strong relationship is due to having only one predictor variable. Additional variables will explain part of this strong relationship.

4.5.2. Regression 2: Independent variables, control variables and FIP

H2: There is a positive relationship between exploration, exploitation and firm innovative performance

Table 10: Model summary for exploration and exploitation

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588 ^a	.346	.303	.61467
a. Predictors: (Constant), Gender, Exploration, Employee Age, Firm Age, Size of firm, Exploitation, Education				

The results in Table 10 is the summary of the predator (exploration and exploitation) variables and the dependent variable (firm innovative performance). The table also contains some control variables (Education, firm's age and length of employee job) perceived to help explain part of the unexplained variable in the dependent variable.

ANOVA results are presented in table 11. It has an F-value of 8.013 with a corresponding p-value of 0.000 implying the model is statistically significant. Hence the combined effect of exploration and exploitation falls within the estimation range.

Table 11: ANOVA for exploration and exploitation

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.191	7	3.027	8.013	.000 ^b
	Residual	40.048	106	.378		
	Total	61.239	113			
a. Dependent Variable: Firm Innovative Performance						
b. Predictors: (Constant), Gender, Exploration, Employee Age, Firm Age, size of firm, Exploitation, Education						

Table 12 depicts a correlation coefficient of 0.588 which indicates a somewhat strong combined correlation between exploration and exploitation on firm innovative performance. However, comparative to ambidexterity model summary, there is a reduction in the adjusted R² implying that the combined effect of exploration and exploitation only explain 30% of the variation in firm innovative performance leaving 70% of the model unexplained.

Table 12: Coefficient of exploration and exploitation

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.729	.264		6.555	.000
	Exploration	.282	.096	.327	2.938	.004
	Exploitation	.225	.099	.249	2.266	.025
	Education	.067	.101	.079	.660	.511
	Firm Age	-.100	.088	-.114	-1.130	.261
	Size of firm	.185	.094	.206	1.957	.050
	Employee Age	-.063	.066	-.101	-.956	.341
	Gender	-.107	.128	-.071	-.840	.403

a. Dependent Variable: Firm Innovative Performance

Results in table 12 presents a close up view of the regression model 1. The standardized coefficient indicates three independent variables are statistically significant at 5%. Exploration with beta 0.327 and a p-value of 0.004 is the strongest predictor of firm innovative performance. Exploitation ($\beta = 0.249$) and length of employee job ($\beta = 0.206$) also predict firm innovative performance respectively.

While exploration, exploitation and size of firm predict firm innovative performance, education, firm age, employee age and gender are not significantly associated with the dependent variable. Hence the moderate correlation explained in table 6 is confirmed by the analysis of the model.

The results suggest that firms can improve their innovative performance by striking a balance between exploration and exploitation activities. However, innovativeness also depends on the length of employees' job period. Working over a period of years helps employees to accumulate experience and improve their skill thereby becoming more efficient.

4.5.3. Regression 3: Hierarchical regression (All variables)

H3: Organizational climates moderate the positive relationship between ambidexterity and innovative performance.

In this section, hierarchical regression is used to analyze dependent, independent and moderator variables. The variables considered in this hierarchical and moderation regression analysis are firm innovative performance (dependent) and organizational climate (fairness, affiliation and innovation) which is the moderating variable, exploration and exploitation variables. To test the effect of the moderator fairness, affiliation and innovation, the moderator and predictor variables are remodeled into a product or interaction term by multiplying each moderator by both exploration and exploitation (FaireEE is a combined product of Fairness*Exploration*Exploitation) to form three different interaction terms. All variables were used to run the hierarchical regression with four different models.

In table 13 below, the adjusted R^2 based on the different models is between 30% and 48%. This implies between 30% and 48% of the variation in firm innovative performance (dependent variable) is explained by the regressors which is less than half of the variation. Hence there are other variables other than the regressors in the models that influence firm innovative performance.

Table 13 summarizes the result of the regression of firm innovative performance on various sets of regressors. Each column summarizes a separate regression. Each regression has the same dependent variable (firm innovative performance). The entries in the first four rows are the estimated regression coefficients with their significance levels presented in parenthesis. The asterisks show whether the t-statistics testing the hypothesis is significant at a 5% level (one asterisk) or at 1% level (two asterisks). The final section of table 13, with four rows, presents the summary statistics for the regression. This shows the adjusted R^2 , the F-value, change in R^2 and the sample size (n).

Section 4.6. Table 13 Hierarchical regression analysis with all variables predicting FIP

	Model 1	Model 2	Model 3	Model 4
	β Standardized	β Standardized	β Standardized	
Constant	1.721(.000)**	.358 (.239)	-.041 (.937)	-.521 (.361)
Independent(s)				
Ambidexterity	.544 (0.000)**	.371 (0.000)**	.358 (0.001)**	.352 (0.02)*
Exploration	.392 (.000)**	.219 (.025)*	.363 (.036)*	.890 (.012)**
Exploitation	.222 (.031)*	-.029 (.769)	.089 (.567)	.558 (.048)*
Moderator V				
Fairness		.394 (.002)*	.220 (.431)	.232 (.411)
Affiliation		.245 (.022)*	.103 (.744)	.175 (0.590)
Innovation		.125 (.543)	.345 (.281)	.030 (0.931)
Control variable				
Education				-.096 (.365)
Gender				-.044 (.559)
Firm's age				-.127 (.155)
Size of firm				.123 (.039)*
Adjusted R²	0.300	0.470	0.470	0.483
F-value	25.260	12.828	1.006	2.302
ΔR^2	0.313	0.181	0.014	0.021
n	114	114	114	114

*Note: P-value is in parenthesis, ** significant at 0.01 level, * significant a 0.05 level
Intercept value is unstandardized, coefficients values are standardized value*

4.6.1. H1: There is a positive relationship between individual ambidexterity and firm innovative performance.

From the conceptual framework in section 2.2.4, the hypothesis suggests that there is a positive relationship between individual ambidexterity and firm innovative performance. Table 9 model 1 indicates a positive significant relationship between ambidexterity and firm innovative performance ($\beta = .544$, $p < 0.01$) therefore hypothesis (H1) is supported. This indicates employee ambidextrous behavior have higher positive effect on firm innovativeness.

4.6.2 H2: There is a positive relationship between exploration, exploitation and firm innovative performance

Hypothesis two (H2) suggests a positive relationship between exploration, exploitation activities and firm innovativeness. The regression in column one supports this hypothesis which is in favor of exploration activities but not exploitation. Exploration is statistically significant at ($\beta = .392$, $p < 0.01$ and $\beta = .222$ $p < 0.05$) respectively. However, the regression in model 2 to 4 only shows a significant relationship between exploitation and firm innovative performance but not a significant relationship for exploitation. Therefore, based on the regression data, the second hypothesis is not supported. This can be attributed to the inclusion of ambidexterity in the model.

4.6.3. H3: Organizational climate moderates the positive relationship between ambidexterity and innovative performance.

Model 2 in table 13 shows the inclusion of the moderator variables to the first model. Hypothesis three suggests that the relationship between individual ambidexterity and firm innovative performance is moderated by organizational climate (organizational climate consists of three variables: fairness, affiliation and innovation) in a way that fairness, affiliation and innovation will strengthen the positive effect between ambidexterity (individual) and firm innovativeness. This implies that the relationship between individual ambidexterity is stronger with the effect of organizational climate on the relationship. Model 2 indicates a significant relationship of fairness ($\beta = .324$, $p < 0.05$), affiliation ($\beta = .245$ $p < 0.05$) respectively. However, the effect of innovation is not significant which means innovation does not moderate the relationship. Therefore, the findings support the hypothesis for fairness and affiliation but not for innovation.

The last model depicts the inclusion of control variables. The variables were perceived to account for some of the variations in firm innovative performance not explained by the independent variables. All control variables except size of firm were insignificant. Size of firm is significant at 5% level ($\beta = .123$, $p < .039$). This infers part of the variation in the predictor variable that was unaccounted for by using the regressors is explained by size of firm. Employees with longer working years have accumulated experiences that result in efficiency and in turn enhance firm innovative performance. However, the non-significant control variables do not account for unexplained variations in predicting the dependent variable (firm innovative performance).

Chapter 5: Discussion, conclusion and recommendation

This chapter covers the interpretation of the results in chapter 4 by linking existing theories discussed in chapter 2 and the findings in chapter 4. The aim of the discussion is to outline relevant suggestions which the findings support. The composition of this section relates findings to the main research question and sub-questions in the context of existing literature.

The objective of this research is to examine the association between firm innovative performance (FIP) and ambidexterity at individual level and the effect of organizational climate on the relationship. Some variables were found to be statistically significant in predicting FIP. This study elaborates on how employee daily activities provide insight on FIP in the long term but serve as a challenge for managers (Tushman & O'Reilly, 2013). To illustrate how ambidexterity, a combination of efficiency in managing current resources while innovating to capture sustainable value influenced firm innovative performance, the following sub-research questions are considered;

5.1. “What is the effect of individual level exploitation and exploration behavior on innovative performance?”

The hierarchical regression results presented in table 13, shows that ambidexterity at the individual level influence FIP. Thus, employees who simultaneously combine exploration and exploitation activities have higher impact on innovativeness of firms. The table also indicates that fairness and affiliation positively influence FIP. Consequently, employees are more effective in influencing firm innovativeness when they are treated fairly, associate with colleagues and share ideas. However, the results did not find a significant relationship between individual innovation activities and firm innovative performance. Correlation matrix in table 6. contrary to hierarchical regression, shows a significant correlation between innovation and FIP. The findings may imply that innovativeness (tolerance for risk taking) is lacking in the organizational settings.

Discussion

Ghemawat and Costa (2005), indicated that firms concurrently pursuing exploration and exploitation get stuck and fail to achieve both and lose competitive advantage as a result. This study found a positive significant relationship between exploration and FIP and insignificant relationship for exploitation. This shows that exploration and exploitation activities impact FIP differently. This supports the study of Ghemawat & Costa (2005), and Ebben & Johnson (2005)

who posits that firms do not only get stuck in pursuing both exploration and exploitation they also fail compared to firms who focus on either strategy. This study argues that exploration occurs when employees discover new opportunities, hence its influence on FIP. On the other hand, employees' willingness to fully utilize the discovered opportunities might be perceived to be too risky and require scarce resources that may not be readily available to some firms. In this regard, opportunities that influence innovativeness of a firm may exist but not employed to capacity hence exploration becomes more significant compared to exploitation.

5.2. “Does organizational climate moderate this effect?”

The findings in table 13 support the findings of existing literatures (Brock et al., 2005; Burges, 2005) that employees who perceive they are being treated fairly have high tendency to engage in activities such as knowledge sharing, avoid doubt, conflict and build trust among colleagues.

Discussion

Fairness

The findings that fairness is highly significant in predicting FIP corroborate Burges (2005) findings. This suggests that firms who employ fairness motivate and encourage employees to share information thereby boosting innovative behavior. Fairness did not only significantly influence FIP but had the strongest influence compared to other regressors in model 2 of table 13. This indicates that fairness promotes positive behavior that stimulates information sharing and innovation in firms. Even though the adjusted R^2 decreased significantly in model 2 when climate variables were added, the results indicate that it significantly explains the variations in firm innovative performance. The researcher therefore concludes that organizational climate (fairness) significantly moderates the relationship between ambidexterity and FIP.

Affiliation

Affiliation was also found to significantly influence the relationship between ambidexterity and FIP. This demonstrates that social activities are vital to encourage employees to share knowledge or information and collaborate effectively to achieve organizational goals. The findings corroborate past studies conducted by Brock et al (2005), Brock and Kim (2002), and Ardichvili et al (2006) who found that affiliation enhances social behavior which ultimately encourages sharing of information and helps promote innovativeness. Since affiliation positively influence FIP, managers in firms should focus on ascertaining and amending behaviors related to employee affiliation through training (role playing) by investing and incorporating social activities in their organizational culture. This will

create a sense of belonging, promote pro-social behavior, encourage full participation from employees and in turn boost innovative performance.

Innovation

Studies (Bock et al. 2005; Roth 2003; and Hult 1998) have found that innovative employees are able to anticipate changes in the environment, recognize opportunities and capitalize on the opportunities by sharing information with the entire firm. The correlation matrix in table 13. indicates significant relationship between innovation and FIP. This may result from lack of resource availability and firms being sensitive to risk-taking. As noted by Bock et al (2005), members of the organization must encourage free flow of information, risk-taking, flexible tasks and make resources available to employees. Firm innovative performance is partly achieved by developing skills and skills are developed through learning. Learning is achieved by making and amending mistakes which imply risk-taking. This way, employees will accumulate skills and experience which will in turn influence innovativeness of firms.

Mom, Van den Bosch and Volberda (2006) showed that ambidexterity is not only achieved on firm level but also on individual level. Comparatively, little is known about ambidexterity at individual and firm level.

5.3. “How does ambidexterity at individual level influence innovative performance in SMEs?”

This study investigated the performance influence of individual ambidexterity and the moderation effect of organizational climate on firm innovative performance. To answer the main research question, the researcher examined the influence of three predictor variables (Ambidexterity, exploration and exploitation). The findings presented in section 5.1 indicated a significant relationship between exploration. This implies that employee tasks aimed at uncovering opportunities contributes to innovativeness of firms. However, exploitation activities which aim at implementing the opportunities uncovered in exploration did not significantly predict FIP, indicating that even though the opportunities exist, sensitivity to risk-taking and lack of needed recourses can hinder innovativeness of firms.

Hypothesis 1 suggests there is a positive relationship between individual ambidexterity and firm innovative performance. In Table 9, Model 1 indicates a positive significant relationship

between ambidexterity and firm innovative performance ($\beta = .544, p < 0.01$). The results corroborate the findings of Jasmand et al (2012) that employees can simultaneously engage in both exploration and exploitation activities that positively impact firm innovative performance. The influence of firm size was significant at 5% level ($\beta = .123, p < .039$), this infers that firms operating long enough have accumulated experiences that result in efficiency and in turn enhance firm innovative performance. This can be partly attributed to limited resources available to SMEs hence managers in SMEs have to focus inside their firm for individual capabilities that enhance long-term survival.

5.4. Conclusion

Comparing existing literatures to the findings in this study, it is apparent that some of the findings in this study partly agree with existing knowledge. However, this study gives more insight into the role of individual level ambidexterity on SME innovative performance since there are limited studies on individual level ambidexterity.

In chapter four, the sub-questions for this study was answered and a contrast between the findings and existing studies were made in chapter five. Section 5.1. points out in relation to sub-question 1, the effect of individual level exploration and exploitation on FIP. This was explained based on the findings in chapter 4 (hierarchical regression table) that exploration significantly relates to FIP contrary to exploitation which was insignificant, even though exploitation was found not be significant in relation to FIP. Although employees are able to uncover capabilities that can help firms, sensitivity to risk taking and lack of resources makes it difficult to implement the found capabilities hence the insignificant relation of exploitation and FIP.

The second sub-question for this study was answered in Chapter five. Section 5.2. points out whether organizational climate moderates the relationship between individual ambidexterity and firm innovative performance. This was explained with the three organizational climate variables (fairness, affiliation and innovation). Both fairness and affiliation were found to be significant which implies that employees are able to build trust and share information if they perceive equitable practices. Similarly, employees can help one another if pro-social activities are aimed to induce a sense of belonging or collaboration in firms.

Innovation was not significant in this study and the reason can be attributed to lack of encouraged creativity, closed system that restricts free flow of information, sensitivity to risk-taking and lack of needed resources. In concluding, it is important to note that employees are important resources to firms and they contribute significantly to innovativeness of firms by cutting cost through improved process of conducting daily tasks. Employees' contribution to FIP cannot be forced, therefore, firms who desire boosting their innovative performance must facilitate or create a conducive environment where employees can freely share information, interact, learn and help each other.

5.5. Managerial implications

Technology is constantly changing the work environment and as a result firms pursue innovation to maintain their competitive advantage. Based on the findings in this study and observations made from existing literature, the following implications are made. The findings of this study have important implications for managers of small businesses in the confines of the industry composition of the sample. Specifically, the relationship between ambidexterity, exploitation, exploration and firm innovative performance could be a valuable source the activities outlined below:

Firstly, the findings show that managers of service SMEs in Belgium should engage in ambidextrous activities since it boost the innovativeness of SMEs. Managers can achieve this by allowing employees to adapt their approach to performing their daily tasks, frequently acquire new skills and find creative ways to improve existing task performance while simultaneously improving new possibilities. This according to the study, results in cost saving for the SMEs.

Secondly, since exploration has significant impact on FIP, managers and SME owners in Belgium should encourage teamwork or collaboration and information sharing among employees. Frequent information sharing informs individual decision-making process, eases workflow thereby enabling employees to fulfil their tasks and achieve set goals. Again, managers should allow employees to have some flexibility in performing their tasks. According to the findings, practices such as working from home enhances employee creativity as a result of flexibility achieved outside the work environment. The study again found that, organizational climate moderates the relationship between ambidexterity and firm innovative performance. Specifically, fairness and affiliation are found to be positive influence on the relationship. The implication for SME managers is to employ an unbiased approach to conflict management and resolution. Employees see themselves as being part of the organization and valued when treated fairly in terms of conflict resolution. Again, managers need to recognize individual efforts and contribution towards set goals or tasks since this serves as a major source of motivation and creates a feeling of being valued by the firm.

In concluding, it is important to note that employees require resources in order to efficiently implement strategies and conduct their daily tasks and in turn boost their innovative performance. Managers need to make resources available for their employees and also be willing to tolerate some level of risk-taking in order for employees to be able to work effectively. This can be incorporated in the business culture at the early stage thereby resulting in a shared norm among employees and also serve as a basis for allocating appropriate resources, as evidenced from the second hypothesis involving organizational climate. Specifically, innovation had no significant impact on the relationship between ambidexterity and FIP. This could mean that firms are very sensitive to risk-taking or managers do not make needed resources available for its employees.

The input of customers is also a valuable source of innovative performance. Managers therefore need to frequently ask customers for feedback and give recommendations for the improvement of the firms' products and or services. Managers should collaborate with customers by organization at least one event a year. This will enable the firm to directly interact with its customers and serve as a source of having access to valuable information that will otherwise not be available to the firm.

5.6. Theoretical implication

- As mentioned earlier, there is limited research on individual ambidexterity and innovative performance in SMEs. Therefore, this study contributes to existing literature on ambidexterity by zooming in on how organizational climate (fairness, affiliation and innovation) improves the relationship between ambidexterity and FIP. The hierarchical regression table in section 4.6 shows the variables in four different models in the regression. The adjusted R^2 is between 30% - 48% which implies the variation in the predictor variable explained by the regressors. This means other variables account for the remaining percentage of FIP not explained in this study.
- Therefore, further research could be conducted to provide more insight into other variables that influence individual level ambidexterity.
- The study also has some implication for society in that, as stated in the introduction section of this study, SMEs are an important part of society, and their activities influence growth in economies as stated by OECD (2015). Since the findings in this study and the literature review provide insight on how to stimulate innovation in SMEs, some aspects of this study could influence employees' behavior and boost employee satisfaction which will in turn impact firm performance.

5.7. Limitations

This study adopted a quantitative approach by collecting data from 121 service firms. The findings are associated with the following limitations which also point to implications for further studies.

The first limitation relates to generalizability. The data was limited to only service firms. These firms have different business models and different approaches to innovation; therefore, the study may not be applicable to every SME.

Another limitation relates to the cross-sectional nature of the data collected, implying that strong causal inferences cannot be made. Although some of the findings support aspects of previous literature studies, stronger conclusions could be made from the use of longitudinal or experimental studies.

5.8. Implication for future research

Studies on models of small and medium sized firm performance have focused primarily on the financial aspects. Non-financial aspects are often excluded from the model. There is the need to delve more into the non-financial aspects such as location of firm and variation in the sector that can be studied to determine its relation to SME performance.

Since innovation has become an important source of growth and survival for firms, aspects such as resource allocation can be investigated in the SME sector. This study has shown that by adapting daily tasks, employees become efficient by adopting cost saving practices. Further studies can help understand how resource allocation based on capabilities contributes to innovativeness of SMEs.

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Appendix B: Total variance explained.

Component	Initial Eigenvalues						Rotation Sums of Squared Loadings		
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.801	44.521	44.521	13.801	44.521	44.521	4.560	14.711	14.711
2	2.420	7.808	52.329	2.420	7.808	52.329	4.537	14.636	29.347
3	1.886	6.082	58.411	1.886	6.082	58.411	3.403	10.978	40.325
4	1.570	5.065	63.476	1.570	5.065	63.476	3.385	10.919	51.244
5	1.131	3.647	67.123	1.131	3.647	67.123	3.238	10.444	61.688
6	1.039	3.352	70.475	1.039	3.352	70.475	2.724	8.787	70.475
7	.950	3.063	73.538						
8	.793	2.559	76.097						
9	.730	2.354	78.451						
10	.653	2.106	80.556						
11	.573	1.849	82.405						
12	.547	1.764	84.169						
13	.519	1.676	85.845						
14	.487	1.572	87.417						
15	.420	1.356	88.772						
16	.386	1.246	90.019						
17	.344	1.111	91.129						
18	.322	1.039	92.168						
19	.306	.986	93.154						
20	.284	.917	94.071						
21	.257	.829	94.900						
22	.238	.768	95.669						
23	.229	.740	96.408						
24	.209	.676	97.084						
25	.184	.592	97.676						
26	.169	.547	98.223						
27	.150	.483	98.706						
28	.127	.409	99.115						
29	.104	.336	99.451						
30	.097	.314	99.765						
31	.073	.235	100.000						

Extraction Method: Principal Component Analysis.

Appendix C: Communalities

	Initial	Extraction
As part of my daily activities, I frequently acquire entirely new skills for solving customer problems.	1.000	.688
As part of my daily activities, I frequently explore new customer needs, while improving the needs of existing customers for products/service.	1.000	.691
I often adapt my approach to work in a way that saves the firm money.	1.000	.717
I frequently introduce new processes (methods) for conducting daily tasks that are generally accepted by the firm.	1.000	.622
I frequently participate in firm activities that present potentially new projects.	1.000	.719
My team members often work with different teams in order to solve problems of conflicting objective.	1.000	.596
Searching for new possibilities with respect to products / services / processes.	1.000	.749
Activities requiring much flexibility from your side.	1.000	.719
Activities requiring you to learn new skills.	1.000	.762
Activities requiring sharing information from your teammates (coworkers).	1.000	.611
Activities of which a lot of experience has been accumulated by yourself.	1.000	.740
Activities which you can properly conduct by using your present skills.	1.000	.713
Activities primarily focused on achieving short-term goals.	1.000	.626
Activities primarily focused on making money for the firm.	1.000	.695
In our firm, we always introduce a high number of new products/services.	1.000	.742
Our firm frequently makes resources available for new (new method of working) activities with no certainty of success.	1.000	.811
Our firm frequently implements new ideas that focus on efficiency (quick) in serving customers.	1.000	.731
Innovation (a new method of working) in my organization is perceived as too risky.	1.000	.791
The management system in my firm works coherently to support the overall objective of the firm.	1.000	.688
My organization helps employees to find a balance between family life.	1.000	.744

I can easily suggest new ideas affecting my work activities to my supervisor.	1.000	.697
Management shows fairness in resolving employee problems.	1.000	.677
I often work together with my colleagues to share ideas in order to resolve issues.	1.000	.683
My colleagues will always help me if I need help to perform a task.	1.000	.800
My colleagues always recognize individual contributions.	1.000	.721
I have easy access to information from my team members when necessary.	1.000	.719
I always share ideas with my colleagues on how to improve my work activities.	1.000	.664
My team members always show their expertise by sharing technical skills.	1.000	.699
Management is strongly focused on solving customer problems instead of finding faults with employees.	1.000	.558
Management is mostly able to identify customer problems by collecting information from various sources.	1.000	.714
My firm encourages employees to adopt new working methods to the best of their abilities.	1.000	.762

Extraction Method: Principal Component Analysis.

Appendix D: **Rotated Component Matrix^a**

	Component					
	1	2	3	4	5	6
As part of my daily activities, I frequently acquire entirely new skills for solving customer problems.	.763					
As part of my daily activities, I frequently explore new customer needs, while improving the needs of existing customers for products/service.	.728					
I often adapt my approach to work in a way that saves the firm money.	.700					
I frequently introduce new processes (methods) for conducting daily tasks that are generally accepted by the firm.	.618	.449				
I frequently participate in firm activities that present potentially new projects.	.581	.502				
My team members often work with different teams in order to solve problems of conflicting objective.	.546	.511				
Searching for new possibilities with respect to products / services / processes.	.516		.500			
Activities requiring much flexibility from your side.	.503		.431			
Activities requiring you to learn new skills.		.806				
Activities requiring sharing information from your teammates (coworkers).		.777				
Activities of which a lot of experience has been accumulated by yourself.		.692				
Activities which you can properly conduct by using your present skills.		.575			.469	
Activities primarily focused on achieving short-term goals.		.516				.461
Activities primarily focused on making money for the firm.		.509				
In our firm, we always introduce a high number of new products/services.		.412				
Our firm frequently makes resources available for new (new method of working) activities with no certainty of success.			.675			.451
Our firm frequently implements new ideas that focus on efficiency (quick) in serving customers.			.658			
Innovation (a new method of working) in my organization is perceived as too risky.			.594			

The management system in my firm works coherently to support the overall objective of the firm.	.415		.581			
My organization helps employees to find a balance between family life.			.515		.412	
I can easily suggest new ideas affecting my work activities to my supervisor.				.776		
Management shows fairness in resolving employee problems.				.766		
I often work together with my colleagues to share ideas in order to resolve issues.				.696		
My colleagues will always help me if I need help to perform a task.				.533		
My colleagues always recognize individual contributions.					.764	
I have easy access to information from my team members when necessary.					.699	
I always share ideas with my colleagues on how to improve my work activities.					.615	
My team members always show their expertise by sharing technical skills.	.406		.419	.433		
Management is strongly focused on solving customer problems instead of finding faults with employees.						.857
Management is mostly able to identify customer problems by collecting information from various sources.						.829
My firm encourages employees to adopt new working methods to the best of their abilities.					.441	.509
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^A a. Rotation converged in 11 iterations.						

Appendix E: Component Transformation Matrix

Component	1	2	3	4	5	6
1	.501	.489	.406	.387	.374	.236
2	-.276	-.412	.300	.168	-.091	.792
3	-.277	-.315	-.262	.610	.577	-.224
4	-.494	.490	-.211	-.398	.472	.301
5	.481	-.064	-.768	.026	-.018	.417
6	-.347	.498	-.207	.539	-.544	.039

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Appendix F: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.890
Bartlett's Test of Sphericity	Approx. Chi-Square	2492.372
	df	465
	Sig.	.000

Appendix G: Reliability of factors used
Appendix G (I): Organizational climate

Case Processing Summary			
		N	%
Cases	Valid	114	98.3
	Excluded ^a	2	1.7
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.908	.910	8

Appendix G (II): Affiliation

Case Processing Summary			
		N	%
Cases	Valid	116	100.0
	Excluded ^a	0	.0
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.877	.879	7

Appendix G (III): Ambidexterity

Case Processing Summary			
		N	%
Cases	Valid	113	97.4
	Excluded ^a	3	2.6
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.851	.853	5

Appendix G (IV): Exploration

Case Processing Summary			
		N	%
Cases	Valid	116	100.0
	Excluded ^a	0	.0
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.849	.850	4

Appendix G (V): Exploitation

Case Processing Summary			
		N	%
Cases	Valid	115	99.1
	Excluded ^a	1	.9
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.825	.832	4

Appendix G (VI): Firm Innovative Performance

Case Processing Summary			
		N	%
Cases	Valid	115	99.1
	Excluded ^a	1	.9
	Total	116	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.758	.757	3