ENTREPRENEURIAL ORIENTATION OR DYNAMIC CAPABILITIES

Do we need them both?

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DO WE NEED THEM BOTH?

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PREFACE

This Master Thesis, part of the Master of Science in Business Administration (MSc.), is about how companies create a competitive advantage over other companies in changing environments. Specifically applied to small to medium sized companies. During my normal working day, I get in contact with many small and medium sized companies. These companies are operating in the Dutch HVAC industry. The company that I am working for is actively introducing new products and services in this market and we see small firms struggling to keep up with these changes.

During my study at the Rotterdam School of Management, I learned about concepts like ambidexterity, dynamic capabilities and strategy in general. This made me wonder how these concepts help these companies in their daily business, resulting in this master thesis.

The process to get to this master thesis was a long one. At the start of the course we as students are warned, do not move, get married, have children, or change jobs during the course of the study. This will extend the time needed to graduate, if you graduate at all. We started in 2012 and it is now 2016, in the intermediate time I, changed jobs twice, moved from Breda to Apeldoorn, and became father for the 2nd time, luckily I was already married otherwise I would have done that as well. I must admit that it would have been wise to follow the advice, but then I would not be where I am now.

I have to thank those people that made it possible for me to still graduate, being Lia Hof for the process support and Maarten Dirks to get me back on track when I was deviating. Secondly I have to thank my supervisor Rene Olie for his patience and always speedy and to the spot feedback and Raymond van Wijk as my co reader for his willingness to review this thesis in a very busy period.

My wife and kids are very happy that I finally graduated, now I can spend more time with them instead of working on this thesis at my parents' house or behind closed door at home. Without their understanding, I would have never finished.

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ABSTRACT

The business environment is changing fast in many industries. New technologies, internet of things, and new competitors with new business models make it difficult for many companies to survive. Other companies thrive in these circumstances, or survive when others go out of business. The majority of the companies worldwide are small to medium sized enterprises and they are an important group for the economy. SMEs have additional barriers and advantages compared to large corporations, which makes it sometimes even more difficult to survive. Clearly, there is a difference between these companies. However, what are the reasons for sustained business performance or sustained competitive advantage for SMEs? The question what the reasons are for sustainable competitive advantage has been a subject of strategy research for many years. Entrepreneurial orientation and dynamic capabilities both try to explain competitive advantage in changing environments and it is proven to have a significant positive effect on the performance of large corporations, but how do they affect SMEs?

The results of a questionnaire, send out to 4.320 installers in the Dutch HVAC industry, show that both entrepreneurial orientation and dynamic capabilities have a positive correlation with the Business performance of the SME. The effect of entrepreneurial orientation is stronger than the effect of dynamic capabilities. Next to this effect, it shows that with stronger dynamic capabilities the effect of entrepreneurial orientation on business performance is less important for the SME.

Not all second level constructs of both entrepreneurial orientation and dynamic capabilities have the same positive effect on business performance. For entrepreneurial orientation all underlying constructs, risk taking, innovativeness, proactiveness, competitive aggressiveness and autonomy have a certain degree of positive correlation. Innovativeness is the only construct, which has a significant positive correlation with business performance. When businesses continuously strive to innovate in their products and services, or in the way they do their jobs, this will positively improve their performance. The underlying constructs of dynamic capabilities, sensing, learning, integrating and coordinating separately do not have a significant positive effect on business performance. They do have a moderating effect on the relation between entrepreneurial orientation and businesses performance. The stronger the dynamic capabilities in a firm, the weaker the effect of entrepreneurial orientation on business performance is. Separately all second level constructs of dynamic capabilities, except integrating

capabilities have the same significant moderating effect on the relation between entrepreneurial orientation and business performance. The higher the single second level dynamic capability, the weaker the effect of entrepreneurial orientation on business performance.

For SMEs, this means that having an entrepreneurial orientation and specifically being innovative in the products and services they offer and the way they do their business has a positive influence on the business performance.

Dynamic capabilities are there for the purpose to change the SMEs current resource base in order to adapt to changing circumstances or to get a competitive advantage over competition. This is a definition of innovation, it is therefore not surprising that dynamic capabilities as well improve the performance, although not as strong as entrepreneurial orientation. To a certain extend they replace each other. When having strong dynamic capabilities, having a strong entrepreneurial orientation is of less importance. When the process are well established and people work according to the processes used for innovation, the entrepreneur in the organization is less important. When these processes are not there, the entrepreneur is key in developing the business. However, answering the question if we need both, yes we do.

KEY WORDS

Entrepreneurship, Entrepreneurial Orientation, Dynamic Capabilities, SMEs, Dutch HVAC industry, SME business performance, market turbulence, Sensing, Learning, Integrating, Coordinating, Risk taking, Innovativeness, Proactiveness, Competitive Aggressiveness, Autonomy.

CHAPTER 1: INTRODUCTION

The business environment in which many companies operate is changing. Technology is changing fast, new business models are deployed and new competitors are entering markets. In the last few years, I have been working in the Heating Ventilation and Air Conditioning business in the Netherlands and here you see these trends in action. New technology like Photovoltaic panels, heat pumps are replacing more traditional gas fired boilers. Internet connectivity is gaining in importance. Home automation, remote control and monitoring of the installation in our homes are becoming increasingly popular. Due to this development, traditional producers see new competitors like Google, with the Nest room controller, and energy suppliers entering the market. These companies launch, beside new products, new business models. Examples are leasing of boilers, free room controllers combined with a contract for electricity or gas. The traditional value chain is changing as well, manufacturers are targeting end-users and in this sense, they are becoming a competitor of their own customers.

The traditional small installation businesses on average 12 employees (CBS, 2014), have difficulties keeping up with these changes. They struggle to keep up with the technological changes. They fall behind in training their employees and have to refer back to the manufacturers more often. They cannot compete with the marketing power of Google or traditional manufacturers like Bosch and Remeha or big energy suppliers like Essent and Nuon.

A consequence of these changes and the economic climate is that there are a large number of business struggling to stay afloat, and many did already go bankrupt. This is a trend which is not only visible in the Heating Ventilation and Air Conditioning business (HVAC) but in other businesses as well. In the Netherlands alone a record number of 12000 companies went bankrupt in 2013 (CBS, 2014). This includes all sizes of companies and industries. The mortality rate among SMEs has been historically higher compared to large companies (Birch, 1979). This is confirmed by data of the Dutch chamber of commerce. In the Netherlands, the mortality rate of SMEs is higher than the rate of large companies (KvK, 2015).

Just one of the reasons that SMEs have a higher mortality rate is that they often do not have the resources of large corporations at their disposal (Aldrich & Auster, 1986; Birley, Niktari, & Hayward, 1995; Foley & Green, 1995; Keskin, 2006; Larsen & Lewis, 2007). Other challenges result from the liability of smallness and liability of newness (Aldrich & Auster, 1986; Beaver, 2003; Kale & Arditi, 1998).

This information made me wonder what SMEs need to do to outperform their competitors, why does the one company survive and the other does not.

The question why some companies outperform others is one of the main questions in the field of strategic management. Scholars have developed several theories to explain these differences. One of the most well known theories, that tries to explain the difference in performance, is the positioning theory of (Porter, 1980). This theory emphasizes the market structure and how a company positions itself in this market. Four generic strategies are proposed, cost leadership, cost focus, differentiation and differentiation focus, a firm needs to adopt on of these strategies in order to succeed (Porter, 1980).

In contrast, the resource based view of the firm sees organizational capabilities as a major source of firm performance and not the positioning of the firm. The combination of unique resources that are valuable, rare, inimitable and non-substitutable create a competitive advantage (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). Yet another theory builds on the resource based view but considers knowledge as the most strategically significant resource of a firm (Kogut & Zander, 1992), the Knowledge Based View of the firm.

However, these theories are not able to explain how companies are able to maintain their competitive advantage over time and in changing environments (Teece & Pisano, 1994).

Several bodies of research try to explain these differences. Two of these bodies are research in entrepreneurship and research in dynamic capabilities. These two areas of research offer different explanations why companies keep on performing in changing environments (Arend, 2014). The dynamic capabilities view tries to find answers in new unique combinations of resources as a reaction to, or anticipating on changing market circumstances (Agarwal & Helfat, 2009; Ambrosini & Bowman, 2009; Eisenhardt & Martin, 2000; Helfat et al., 2007; Winter, 2003; Zahra, Sapienza, & Davidsson, 2006). This is done by developing specific capabilities in the form of processes and procedures, or setting up decision rules (Eisenhardt & Martin, 2000; Teece, 2007). Entrepreneurship research on the other hand describes how companies or individuals take bold risks, act proactively and innovate in order to outperform their competitors (Covin & Slevin, 1998; Lumpkin & Dess, 1996).

RESEARCH OBJECTIVE

For large corporations we know that dynamic capabilities and entrepreneurship have a positive influence on performance (Agarwal & Helfat, 2009; Ambrosini & Bowman, 2009; Cavusgil, Seggie, & Talay, 2007). However, do these theories have the same positive influence on SMEs? As mentioned earlier, SMEs have specific challenges compared to large corporations when trying to survive, the liability of smallness and liability of newness (Aldrich & Auster, 1986; Beaver, 2003; Kale & Arditi, 1998).

What are these SMEs lacking, will they not have the right dynamic capabilities or could it be that they are not as entrepreneurial as one might think? These questions result in our first research objective:

Do entrepreneurial orientation and dynamic capabilities improve performance of SME's?

Since it has been proven that entrepreneurship has a positive influence on the performance of small businesses, could it than be that a combination of both dynamic capabilities and entrepreneurship is needed. Covin & Lumpkin (2011) hint to the option that dynamic capabilities are the enabling device for entrepreneurship. Teece (2012) argues that companies are not always able to build the needed dynamic capabilities and that these responsibilities and processes are taken over by top management. The entrepreneurial and leadership skills of executives are needed to sustain dynamic capabilities. This is the second research objective of this research:

Do entrepreneurship and dynamic capabilities reinforce each other's effect on firm performance of SME's?

CONTRIBUTION TO THE FIELD

THEORETICAL RELEVANCE

There is little empirical research on dynamic capabilities in SMEs, the major part of the empirical studies in the dynamic capabilities field have focused on large corporations (Drnevich & Kriauciunas, 2011; Peteraf, Di Stefano, & Verona, 2013). Some scholars explicitly mention that SMEs and young ventures cannot have dynamic capabilities since it requires time and resources (Helfat & Peteraf, 2003). On the other hand, there are scholars that confirm the presence of dynamic capabilities in SMEs (Arthurs & Busenitz, 2006; Winter, 2003). First of all, this study will continue to enrich the field with empirical evidence of dynamic capabilities in SMEs.

A second element is that there is plenty of research on entrepreneurship in SMEs. There is a well-established positive link between entrepreneurship and firm performance (Avlonitis & Salavou, 2007; Lumpkin & Dess, 1996; Lumpkin & Dess, 2001). This positive link does not explain how these companies make the needed changes in their resource base, dynamic capabilities could be the enabling device (Covin & Lumpkin, 2011). This study tries to give an answer to that question.

PRACTICAL RELEVANCE

Many companies, large and small see their markets changing faster and faster, questions might arise on how to respond to these changes. How do I make sure that my company does not miss opportunities or threats, and what is needed to change the company in such a way so it survives? There is plenty of knowledge for large companies and the capability they need but not as much for the smaller ones (Peteraf et al., 2013). This study will try to give an answer to what extend dynamic capabilities are needed for SMEs and to what extend they can rely on their entrepreneurial orientation. This will give the SMEs the possibility to shape their business in a way they need to survive.

THESIS OUTLINE

This research paper is organized as follows. In the next section, the literature review, the two main concepts of dynamic capabilities and entrepreneurial orientation are described and conceptualized. Based on these theories, hypotheses are developed. These hypotheses concern first, the effect of dynamic capabilities and entrepreneurial orientation on firm performance, and second the moderating effect of dynamic capabilities on entrepreneurial orientation in relation to firm performance. Chapter three describes the research method, the way the data is collected, the analysis that is being performed and how the hypotheses are tested. The next chapter presents the results of the data collection followed by chapter five where the results are discussed, conclusions are written down and directions for future research determined.

CHAPTER 2: LITERATURE REVIEW

This chapter explores the two research streams. The streams of dynamic capabilities and entrepreneurship with an emphasis on entrepreneurial orientation in particular. The first part of the chapter starts exploring dynamic capabilities. It starts with exploring its origins and providing a base to understand dynamic capabilities. Followed by a condensed overview of the current standing of research, and concluded by a clarification of the definitions and construct. The second part of this chapter explores entrepreneurial orientation, following the same structure.

DYNAMIC CAPABILITIES

Research on dynamic capabilities has been part of strategy research for many years, but from the moment Teece and Pisano published their article on dynamic capabilities in 1997, the concept drew more and more attention. They are one of the first that really tried to define the concept. Their definition of dynamic capabilities is “The firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece, Pisano, & Shuen, 1997). They extend the resource based view by suggesting a special kind of capability that enables a company to change the way they use their resources in such a way that it suits new market conditions.

Before we explore dynamic capabilities further it is helpful to understand the origins and definitions underlying the construct of dynamic capabilities.

THE ORIGIN OF DYNAMIC CAPABILITIES

Di Stefano (2014) examined the origins of dynamic capabilities by analysing the references that are most cited by the leading papers on dynamic capabilities. The fields he found are the resource based view (Wernerfelt, 1984), the knowledge based view (Kogut & Zander, 1992), behavioural theory (Cyert & March, 1963), evolutionary economics (Winter & Nelson, 1982), network theory (Granovetter, 1985), transaction cost economics (Williamson, 1975) and the positioning view (Porter, 1980).

From these fields of research, the resource based view is cited most frequently followed by the knowledge based view and behavioural theory.

In order to understand dynamic capabilities, it is good to understand its roots and therefore I would like to examine the resource based view as its primary influencing field more in detail.

THE RESOURCE BASED VIEW

The term resource based view was first mentioned by Birger Wernerfeld in his publication in 1984 and was extended by Barney in 1986.

The resource based view chooses an internal perspective on the source of competitive advantage. This is in contrast to the view Porter published in 1980, which looked at industry structure and positioning within that industry. The resource based view looks at firm characteristics and its relation to performance, it proposes two assumptions for analysing competitive advantage. First, this model assumes that resources within companies in the same industry are heterogeneous in the resources they control. Second, the model assumes that these resources are not mobile across firms and can therefore be a source of competitive advantage (Barney, 1991). The model of Porter assumes the opposite, these resources are more homogenies and when they develop heterogenic they are easily transferred (Porter, 1980).

FIRM RESOURCES

The firm's resources in the resource based view is defined as "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. Controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (Barney, 1991). This is the definition used throughout this paper when talking about firm resources.

These resources can be roughly classified in three groups: Physical resources, human resources and organizational resources. Physical resources are al tangible assets like equipment, location and materials. Human resources include training, intellect, experience and talent of the people working for the firm. Organizational resources are the organizational structure, coordination mechanisms and processes (Barney, 1991)

SUSTAINED COMPETITIVE ADVANTAGE

The aim of the resource based view is to analyse sources of sustained competitive advantage, which in turn improves business performance over time (Barney, 1991). The resource based view defines competitive advantage as follows. "A firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors. It is clear that not all the resources a firm possesses create a sustained competitive advantage (Barney, 1991). These resources must have four attributes, the so-called VRIN attributes. They must be *valuable*; they must create value for the firm or neutralize threats, they must be *rare* among current of potential competitors, they cannot be copied perfectly, they are *imperfectly imitable* and there are *no substitutes* available that create the same value or counter the same threats (Barney, 1991).

These definitions only ensure competitive advantage when competitors are not able to copy the strategy, but it does not address any changes in the market or the environment. A firm can deploy brilliant strategies and have resources that have all of the four VRIN attributes, but when a market shifts or demand changes the products or services the company produces can become obsolete (Barney, 1991; Eisenhardt & Martin, 2000; Helfat et al., 2007; Teece et al., 1997). This is where dynamic capabilities add to the resource based view.

DEFINITION OF DYNAMIC CAPABILITIES

The dynamic capabilities framework has attracted more and more attention over the years, but where the resource based view framework has settled, the dynamic capabilities framework is still seen as work in progress (Di Stefano, Peteraf, & Verona, 2014; Helfat & Peteraf, 2009; Peteraf et al., 2013). The following part of this chapter will clarify the current level of understanding of dynamic capabilities.

NORMAL VERSUS DYNAMIC CAPABILITIES

The first step in clarifying dynamic capabilities is understanding the difference between different kinds of capabilities. When there are dynamic capabilities there are ordinary or normal capabilities as well. Dynamic capabilities differ from ordinary capabilities (operational capabilities) they even contrast for the reason that dynamic capabilities are concerned with change of ordinary capabilities (Winter, 2003). Three levels of capabilities are defined, 0-level capabilities, first order capabilities and higher order capabilities. The capabilities exercised in a stationary process aimed to “earn a living now” are the 0-level capabilities. First order capabilities are those capabilities that change current processes or products, a good example are R&D processes. In changing environments, these routines can still become obsolete and a company would for instance develop the wrong products for the market. Higher order dynamic capabilities ensure timely change of these routines and a way to respond to market changes. (Winter, 2003).

COMPARING DEFINITIONS

As mentioned, the field of dynamic capabilities has not settled and there is no generally accepted definition of dynamic capabilities (Di Stefano, Peteraf, & Verona, 2014; Helfat & Peteraf, 2009; Peteraf et al., 2013). For this reason, there are multiple definitions and a lack of consensus. This is one of the main criticisms on the field, resulting in slow progress (Helfat & Peteraf, 2009; Peteraf et al., 2013; Schilke, 2014) The publication of Teece and Pisano (1997) on dynamic capabilities caused a greater attention for the subject (Di Stefano, Peteraf, & Verona, 2014) and the field started to develop faster. Teece (2007) builds on the definition of Teece and Pisano (1997) and extends it to the following definition: “Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through

enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007).

Another definition of dynamic capabilities is given by Eisenhardt & Martin (2002). "The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain, and release resources – to match and even create market change; dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die" (Eisenhardt & Martin, 2000)

All these definitions focus on processes that enable firms to find new opportunities or create awareness of threats. It enables these firms to formulate an appropriate answer to these threats and to capture the opportunities, and finally implement the chosen strategy by recombining or changing the tangible or intangible resources. In addition, there are many other definitions by different scholars available.

One of the reasons of this unclearity of the construct is that there are two streams of research on dynamic capabilities that have not merged, one stream with the work of Teece as central source and the other stream with the work of Eisenhardt as central theory. These two research streams followed separate development paths (Peteraf et al., 2013).

Table 17 in the appendix lists the main definitions currently used in the field. The definitions of Teece (1997) and Teece (2007) together with the definition of Eisenhardt & Martin (2000) have the highest citation scores (Peteraf et al., 2013). Moreover, they are seen as the two core publications on which a large part of the other work is based upon (Di Stefano et al., 2014; Peteraf et al., 2013).

An interesting question is what the differences are between the definitions and viewpoints of these scholars. The following paragraphs try to give a good comparison. This comparison is structured alongside five components, the nature (What is a dynamic capability), the agent (who exerts it), the action (what does the agent do), the object (on what does the agent exert action) and the aim (what does it want to achieve). This framework is based on the framework of (Di Stefano et al., 2014). The boundary conditions (when does the framework apply) and the influence (how does it influence performance) will be added as a sixth and seventh element.

THE NATURE

This element is considered the first difference between the definitions of Teece (2007) and Eisenhardt (2000) of dynamic capabilities. As shown in figure one there are two ways of describing the nature of dynamic capabilities. The first way is ability, capacity or enabling device, these are latent actions (Di Stefano et al., 2014). The research surrounding the core work of Teece typically describes dynamic capabilities in this sense. Examples are "Dynamic capabilities refers to the *capacity* of an organization to purposefully create, extend or modify its resources or skills" (Kale & Singh, 2007) or "The capacity of

an organization to purposefully create, extend, or modify its resource base" (Helfat et al., 2007). The other way of describing dynamic capabilities is in the way of routines and procedures. Eisenhardt was the first to describe it in this way "The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain, and release resources – to match and even create market change; dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die'' (Eisenhardt & Martin, 2000). They are also described as managerial routines and processes (Amit & Zott, 2001). The main difference between the two ways of describing the nature has an influence on the empirical evidence gathered in this research. Abilities or capacities are only detectable when they are executed whereas processes and procedures can be observed even when they are not executed, this opens up the possibility to find these processes and link them to performance (Di Stefano et al., 2014; Helfat et al., 2007).

Interestingly Teece (2007) describes the microfoundations of dynamic capabilities as processes like R&D processes or processes to sense new opportunities. He refers to examples given by Eisenhardt (2000) as good examples for dynamic capabilities as well. Therefore, the differences between the definitions in the sense of the nature of dynamic capabilities are not that big.

The microfoundations or building blocks of dynamic capabilities will be described in one of the next paragraphs.

THE AGENT

Defining the agent is concerned with the question, who is using dynamic capabilities or executing these processes. Research is focused on the role of the firm or the role of the manager. These two levels of analysis do not receive the same attention; the role of the organization has received greater attention looking at the number of publications (Di Stefano et al., 2014). Here Teece and Eisenhardt are looking at the same level of analysis, both look at the organizational level, Teece (1997) looks at the *firm's* ability and Eisenhardt (2000) looks at the *firm's* processes. Zahra (2006) and Knight and Cavusgil (2004) focus on the manager and their ability to either renew competences or manipulate resources in the way they feel needed.

THE ACTION

This refers to whether the actions are aimed to change current resource base or to create new resources. There is a split between these two views but they are also mentioned together (Di Stefano et al., 2014). Zahra (2006) focuses on reconfiguration of the firm's resources and Helfat (2007) explicitly mentions the possibility to create new resources together with changing the current ones. Eisenhardt & Martin (2000) describe this as achieving new resource combinations, they do not explicitly mention whether is excludes or includes creation of new resources in their definition. However, they do mention gaining and releasing resources as a specific capability, this includes creation of new knowledge, which

is a resource on its own (Eisenhardt & Martin, 2000). The same story applies to the definition of Teece (2007), it does not include or exclude creation of new resources in his definition, but in the microfoundations, creation of new knowledge is an explicit capability (Teece, 2007). Looking at the different definitions, whether or not it is explicitly mentioned, changing a resource base can mean adding resources to an existing resource base and creating new ones.

THE AIM

A more relevant element is the relation between the action of executing dynamic capabilities and firm performance. There are two ways of defining this relation described in the literature. The first one is a direct relation between dynamic capabilities and the firm's performance, and the second one is an indirect relation via the changes of the resource base. Following Teece (1997), many scholars assume a direct link between the presence of dynamic capabilities and the performance of the firm (Ambrosini & Bowman, 2009). Griffith and Harvey (2006) describe it as "a global dynamic capability is the creation of difficult-to-imitate combinations of resources [...] that provide a firm competitive advantage". In the same sense Lee et al (2002) define dynamic capabilities as a source of competitive advantage in dynamic markets.

These definitions are criticized as being tautological; they assume that the performance of a firm when identifying dynamic capabilities always shows improved performance and the other way around (Ambrosini & Bowman, 2009).

The second group assumes a more indirect link between dynamic capabilities and performance through the changes of the resource base. Zahra (2006) defines dynamic capabilities as changing the resource base as does Helfat (2007) in their definition they do not mention a direct link between dynamic capabilities and performance but a direct link between dynamic capabilities and the ability to change the resource base. This can still mean that the changes made to the resource base do not contribute to a better performance because these changes are inappropriate (Barreto, 2010; Borch & Madsen, 2007; Helfat & Peteraf, 2009).

Teece (2007) defines that maintaining competitiveness of the company is achieved through the enhancement, combination, protection and reconfiguration of the companies' tangible and intangible assets. These assets are the companies' resources. Eisenhardt & Martin (2000) as well mention dynamic capabilities as the routines by which they achieve new resource configurations by which they match market change or create market change. In both definitions, improved performance is achieved through changing the resource base or tangible and intangible assets of the company through which a competitive advantage is created. The differences in the aim between these two research streams are small.

THE OBJECT

There are again two types of definitions of the object of the action. This can be on ordinary capabilities or on resources. One way to put it is dynamic capabilities are “those that operate to extend, modify or create ordinary capabilities”. (Winter, 2003) Or dynamic capabilities are the organizational and strategic processes through which managers convert resources into new productive assets in the context of changing markets”(Colbert, 2004).

This issue might also be a matter of definition. When we take the definition given by Barney (1991) as mentioned earlier, resources include assets, resources and capabilities. In addition, these capabilities can be physical, organizational and human. The object therefore gives no clear distinction between both definitions of Teece and Eisenhardt.

BOUNDARY CONDITIONS

Another point of discussion are the boundary conditions that determine when the dynamic capabilities framework applies. Two conditions are a continuous point of debate. The first one being the market dynamics. The question is whether dynamic capabilities only apply to highly dynamic markets or they also apply to moderately dynamic markets. The second boundary condition is the application of dynamic capabilities to large or small to medium sized enterprises.

The first boundary condition, dynamic markets, is mentioned by Teece (1997) as the condition to which dynamic capabilities apply. In younger publications, Teece does not mention rapidly changing markets anymore but he mentions dynamic capabilities as capabilities to respond to opportunities and threats (Teece, 2007). Eisenhardt (2000) states that dynamic capabilities encounter boundary conditions, especially in volatile markets. The reason being that, in the definition of Teece (1997), dynamic capabilities are detailed routines and processes for which there is no time to deploy in volatile markets. Eisenhardt (2000) states that in these markets dynamic capabilities are simple rules, which in itself can be copied easily. This statement therefore also questions the source of competitive advantage of dynamic capabilities in these environments.

There is, on the other hand, an agreement that the usefulness of dynamic capabilities increases with the level of dynamism in markets (Eisenhardt & Martin, 2000; Peteraf et al., 2013; Teece, 2007).

The second boundary condition is whether the framework applies to large or large and small to medium sized enterprises. Teece (2007) states that these capabilities mainly apply to large enterprises or multinationals due to market characteristics under which these dynamic capabilities are relevant. These characteristics are, openness of the market to the chances and threats of rapid international technological change. Technical change needs to be systemic and multiple inventions must be combined to create products and services that answer to customer needs, there need to be well

developed global markets for exchanging goods and services, and finally the business environment itself needs to be poorly developed in ways to exchange technological and managerial expertise.

Eisenhardt and Martin (2000) do not mention the size of the company as being a boundary condition. Teece is less determined in his publication in 2012 on the applicability of dynamic capabilities mainly or large enterprises, smaller organizations do as well possess these capabilities but they may reside in individuals (Teece, 2012). Zahra et al. (2006) explicitly looked for dynamic capabilities in new ventures, he established the presence of dynamic capabilities but there are different in their appearance, speed of development, methods of development and their capability upgrading (Zahra et al., 2006)

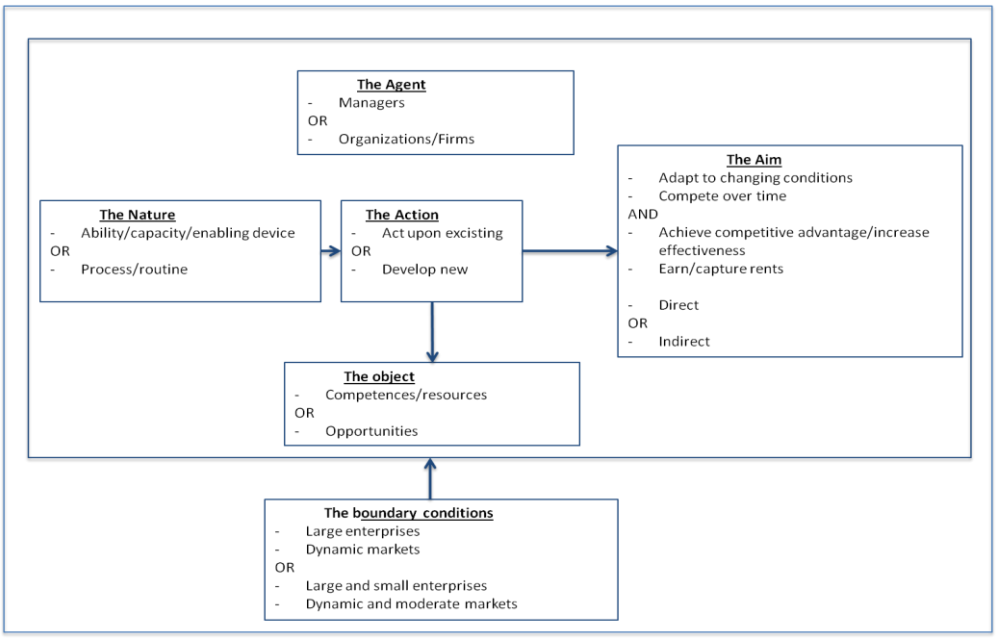
It can be concluded that dynamic capabilities can be present in both large and small companies but they are different in their appearance. The importance of dynamic capabilities does grow with increasing company size.

Summarizing, the difference between the definitions Eisenhardt & Martin (2000) and Teece (2007) of dynamic capabilities are limited. The only major difference is the boundary condition of market turbulence. Where Eisenhardt and Martin state that dynamic capabilities in a highly volatile market cannot be detailed processes but simple rules and the outcome of these rules are uncertain and easy to replicate. This makes dynamic capabilities in these markets less of a competitive advantage.

There are not that many differences between the definition of Teece (2007) and Eisenhardt & Martin (2000). For this study, the definition of Teece (2007) is used since it is more suited for analysis purposes because a comprehensive framework is created. The definition of Teece is as follows:

"Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007)

Figure 1: Framework of dynamic capabilities based on Di Stefano et. al (2013)



MICROFOUNDATIONS OF DYNAMIC CAPABILITIES

The next step in understanding dynamic capabilities is looking at the microfoundations of dynamic capabilities. In other words, what do these capabilities look like?

Teece (2007) described these microfoundations as building blocks of sensing, seizing and managing threats/transforming capabilities.

Table 1: Microfoundations of dynamic capabilities (Teece, 2007)

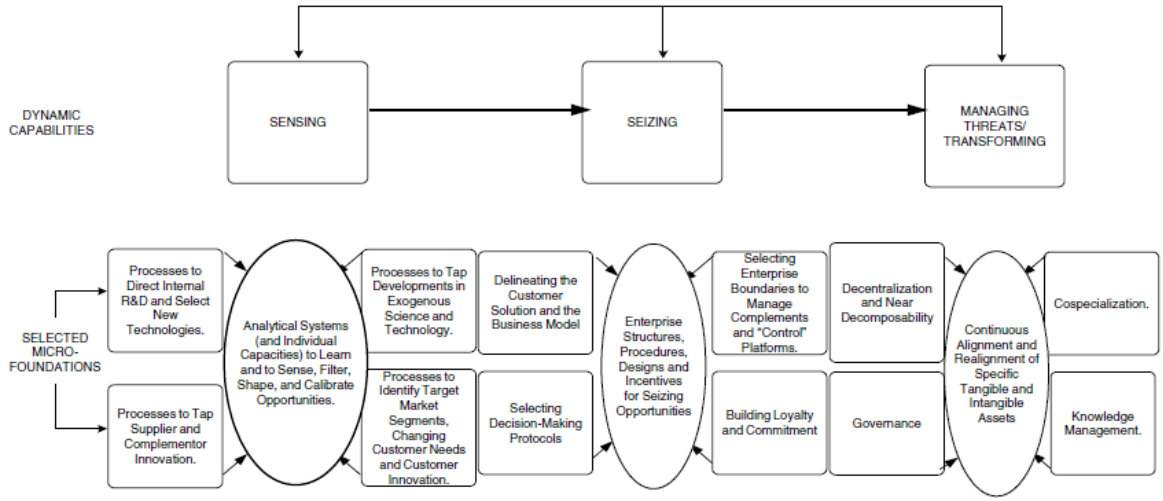
Dynamic capabilities	Definition	Microfoundations
Sensing	Analytical systems (and individual capacities) to Learn and to sense, Filter, Shape and Calibrate opportunities	-Processes to direct internal R&D and select new technologies -Processes to tap supplier and complementary innovation -Processes to tap developments in exogenous science and technology -Processes to identify target market segments, changing customer needs and customer innovation
Seizing	Enterprise structures, procedures, designs and incentives for seizing opportunities	-Delineating the customer solution and the business model -Selecting decision making protocols -Selecting enterprise boundaries to manage complements and "control" platforms -Building loyalty and commitment
Managing threats/transforming	Continuous alignment and realignment of specific tangible and intangible assets	-Decentralization and near decomposability -Governance -Cospecialisation -Knowledge management

The sensing capability is described as “analytical systems (and individual capacities) to learn and to sense, filter, shape, and calibrate opportunities” (Teece, 2007). Consecutively Teece (2007) describes four microfoundations per dynamic capability, for sensing these are processes to direct internal R&D and select new technologies, processes to tap into supplier innovation, processes to tap into new technologies from outside of the firm’s ecosystem and processes to identify new market segments or changing customer needs. The sensing capability comes down to developing an ecosystem framework that helps the firm identify market and technological opportunities (Teece, 2007).

The second dynamic capability, seizing, is defined as “enterprise structures, procedures, designs and incentives for seizing opportunities” (Teece, 2007). They again consist of four microfoundations, selecting the correct business model, defining decision-making protocols, defining proper incentives and building loyalty and commitment. Some examples are; selecting the products to serve the markets, processes to eliminate decision making bias, defining incentives that will encourage seizing new opportunities instead of sticking with what is familiar.

The dynamic capability of managing threats/change capabilities is defined as “continuous alignment and realignment of specific tangible and intangible assets” (Teece, 2007). The first microfoundation related to this capability is decentralization and near decomposability. These capabilities ensure that organizational structures can be changed when needed and that coordination and integration skills are available to guide these changes. Appropriate governance structures need to make sure incentives are aligned, agency issues are minimized, strategic malfeasance is checked and rent dissipation is blocked (Teece, 2007). The cospecialisation microfoundation manages the strategic fit so that asset combinations are value enhancing, the combination of current and new assets forms valuable new resources or resource bundles. The last microfoundation is knowledge management. Whenever new knowledge needs to be incorporated, new technologies need to be applied and the organization needs to learn. The knowledge needs to be transferred from external sources into the organization and expertise needs to be integrated (Teece, 2007). Figure 1 summarizes the dynamic capabilities framework and figure 2 shows how these capabilities, their relation to each other, and the microfoundation

Figure 2: Conceptual model of Dynamic Capabilities and its microfoundations (Teece, 2007)



To a certain extend these microfoundation are still on a high level and difficult to measure. Several scholars tried to break these dynamic capabilities down and create a set of tangible and measurable set of elements (Pavlou & El Sawy, 2011). Pavlou & El Sawy (2011) extended this research and started to create this set from the conceptualisation of Teece (1997) and Teece (2007). From that point onward, they combined the known literature on measuring dynamic capabilities, which are often labelled with different names, into a framework and measurement scale. This set of capabilities is aimed at reconfiguring the operational capabilities of the firm, which in turn produce new and innovative services or products (Pavlou and El Sawy, 2011).

They propose four dynamic capabilities, sensing capability, learning capability, integrating capability, and coordinating capability.

The first capability, sensing, is in line with the definition of Teece (2007). It is the company's ability to scan the business environment and identify the opportunities and threats. There are three basic routines that make up the sensing capability, generating market intelligence, disseminating market intelligence, and responding to market intelligence (Pavlou and El Sawy, 2011).

The second capability, learning, is defined as *"the ability to revamp existing operational capabilities with new knowledge"* (Pavlou and EL Sawy, 2001, P 244). When the firm identified new opportunities or threats, it needs to make sense of the information and apply it to itself. This is to take advantage of the information. The underlying capabilities of learning are closely related to absorptive capacity literature. Absorptive capacity as defined by Zahra and George (2002) and its underlying routines of acquiring, assimilating, transforming, and exploiting knowledge are closely related to terms used in dynamic capabilities literature (Pavlou and El Sawy, 2011).

The third capability, integrating, needs to integrate this new knowledge into the firm once it is identified, related, and translated to the current situation of the firm. It is defined as *"the ability to combine individual knowledge into the unit's new operational capabilities"* (Pavlou ad El Sawy, 2011). Three routines make up the integrating capability. First, collecting and combining individual inputs. Second, building a shared understanding, and third routinizing of the newly acquired operational capabilities (Pavlou and El Sawy, 2011)

The fourth capability, coordinating, is defined as *"the ability to orchestrate and deploy tasks, resources, and activities in the new operational capabilities"* (Pavlou and El Sawy, 2011). When a firm identified new opportunities, made sense of the information and learned what it needs to with it, build a common sense of understanding throughout the firm, it still needs to take action. The coordination capability makes sure that tasks are deployed and coordinated between all resources and they support the new operational capability. The basic routines that support this capability are, assigning resources to tasks, appointing the right person to the task, identifying complementarities and synergies among tasks and activities, and orchestrating collective activities (Pavlou and El Sawy, 2011).

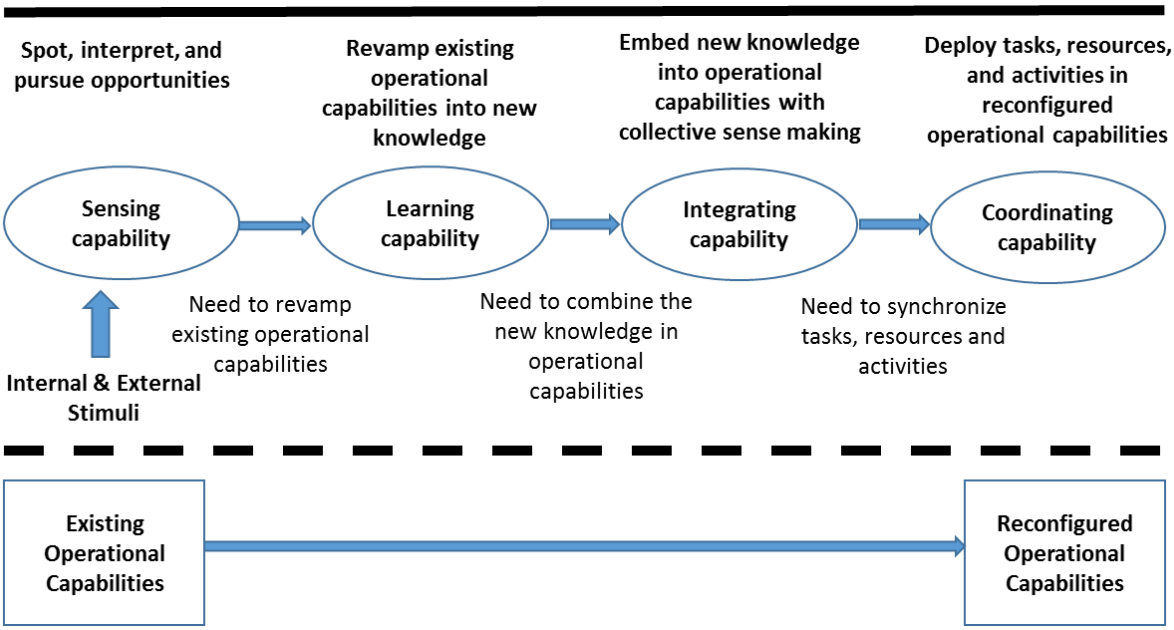
Table 2 shows an overview of the proposed dynamic capabilities and the roots they have in literature.

Table 2: Definition of proposed capabilities and links to the dynamic capabilities literature (Pavlou and El Sawy, 2011)

Capability	Definition	Basic Routines
Sensing capability	The ability to spot, interpret and pursue opportunities in the environment.	- Generating market intelligence (Galunic & Rodan, 1998) -Disseminating market intelligence (Kogut & Zander, 1996) - Responding to market intelligence (Teece, 2007)
Learning capability	The ability to revamp existing operational capabilities with new knowledge.	- Aquiring, assimilating, transforming, and exploiting knowledge (Zahra & George, 2002)
Integrating capability	The ability to embed new knowledge into the new operational capabilies by creating a shared understanding and collective sense-making	- Contributing individual knowledge to the group (Okhuysen & eisenhardt, 2002) - Respresentation of individual & group knowledge (Crowston & Kammerer, 1998) -Interrelation of diverse knowledge inputs into the collective system (Grant, 1996)
Coordinating capability	The ability to orchestrate and deploy tasks, resources, and activities in the new operational capabilities.	- Assigning resources to tasks (Helfat & Peteraf, 2003) - Appointing the right person to the right task (Eisenhardt & Brown, 1999) - Identifying synergies among tasks, activities, and resources (Eisenhardt & Galunic, 2000) - Orchestrating activities (Henderson, 1994)

Figure 3 shows the dynamic capabilities in a sequential order and how they influence each other. This list is not exhaustive and the relation can be reciprocal, but is shows a simplified overview on how these capabilities interact. (Pavlou and El Sawy, 2011). The framework and the questionnaire derived from this study is used in the questionnaire of this study.

Figure 3: A framework for representing the proposed measurable model of dynamic capabilities (Pavlou and El Sawy, 2011)



SUMMARY

Dynamic capabilities have its origin in many different fields. Three fields had a larger influence being the resource based view, knowledge based view and behavioural theory. Dynamics capabilities extend on the resource based view by making the concept applicable on rapidly changing markets. Capabilities are classified in different level 0 level capabilities, first level capabilities and dynamic capabilities. In this study the definition of Teece (2007) is used being: to “Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise’s intangible and tangible assets” (Teece, 2007). These capabilities are detailed processes like R&D processes, decision-making rules and others. They can be present in large as well as smaller enterprises, but importance grows with the size of the firms. Besides size, market turbulence causes differences as well, the greater the turbulence the greater the importance of dynamic capabilities but according to Eisenhardt & Martin (2000) the appearance changes from details processes to simple rules. There are two lines of thought on the way dynamic capabilities have an effect on firm performance. The first one is a direct relation in line with the theory of Teece (1997) and a more indirect link via changes in the resource base, following Zahra (2006) and others. Dynamic capabilities are difficult to operationalise for measurement purposes. A combination of known operationalisations is summarized in four proposed dynamic capabilities, sensing, learning, integrating, and coordinating capabilities (Pavlou and El Sawy, 2011)

ENTREPRENEURIAL ORIENTATION

The second main theory of this study is entrepreneurship or entrepreneurial orientation in particular. This will be elaborated on in the next section of this chapter.

ENTREPRENEURSHIP AND ENTREPRENEURIAL ORIENTATION

Research on entrepreneurship and entrepreneurial orientation has existed for decades, it is already mentioned by Schumpeter (1934) and varies from research into corporate entrepreneurship, entrepreneurial culture and the construct of entrepreneurial orientation (Covin & Lumpkin, 2011). The concept of entrepreneurial orientation itself is introduced by Danny Miller (1983) (Covin & Lumpkin, 2011).

Research on entrepreneurship can be divided in three streams, research in 'what' happens when entrepreneurs act, research in "why" entrepreneurs act and research in "how" entrepreneurs act (Stevenson & Jarillo, 1990). Research in the why of entrepreneurship focuses on the individual, why does this individual act as an entrepreneur? The disciplines of psychology and sociology are the main fields that focus on the individual (Stevenson & Jarillo, 1990). The question of what happens when entrepreneurs act, focuses on the results of entrepreneurship. The basic discipline in this stream is economics. In this research stream, the definition of entrepreneurship is defined as the function by which growth is achieved thus not only the act of starting a new business, which is often seen as entrepreneurship. Another important contribution is the distinction made between manager and entrepreneur (Stevenson & Jarillo, 1990). The how question is the focus of management research, it tries to find out what the actions are of entrepreneurs that lead to economic result (Stevenson & Jarillo, 1990). Entrepreneurial orientation is part of this research stream.

Early research in strategy on the topic of entrepreneurship focused on the question what businesses need to do to enter a market, "the basic entrepreneurial problem" (Miles, Snow, Meyer, & Coleman, 1978). This determined the product market combinations, resource development and the positioning in the market. When the field progressed the interest shifted towards the processes that managers use to act entrepreneurial, and to develop a firm level construct of entrepreneurship. Concepts from strategy-making process literature are used (Covin & Slevin, 1989; Miller, 1983). Entrepreneurial orientation differentiates itself from entrepreneurship in the action. Entrepreneurship is defined as the action of *new entry* and entrepreneurial orientation describes how new entry takes place, what actions and decisions make this happen (Lumpkin & Dess, 1996). New entry can mean many things, from a new product or service in an existing market to existing products in new markets. Starting a new business of buying an existing business and expanding with the current products to similar markets but in other countries (Burgelman, 1983), new entry is not limited to starting a new business.

The following part of this chapter will establish what entrepreneurial orientation actually is, what is its definition? Researchers in the field still need to settle upon a widely accepted definition of entrepreneurial orientation (Covin & Wales, 2011). In the appendix, a table is placed that lists a variety of definitions of entrepreneurial orientation over time. There are two main conceptualizations of entrepreneurial orientation, the first one being the based on the research of Miller (1983) and the second one based on Lumpkin and Dess (1996).

UNIDIMENSIONAL THEORY OF ENTREPRENEURIAL ORIENTATION.

Miller (1983) defines entrepreneurial orientation as:

"An entrepreneurial firm is one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch" (Miller, 1983).

Although the literature Miller draws from classifies entrepreneurial orientation as a multidimensional concept, he argues that a firm cannot be truly entrepreneurial when one of the elements is missing. An innovative firm cannot beat competitors to the punch when they do not take some risk in investing in new product or technologies and act proactively to introduce them before competitors do, or are not even innovative when they quickly copy competitors. When testing entrepreneurship and its underlying elements, he found they were all correlated significantly in the same direction. This made him conclude that entrepreneurship can be treated as an aggregate construct of the three elements calculated as the average of the three making the construct unidimensional (Covin & Wales, 2011).

MULTIDIMENSIONAL THEORY OF ENTREPRENEURIAL ORIENTATION

The theory of Lumpkin & Dess (1996) has not been adopted or used as a model as often as the theory of Miller but is still the second popular construct (Covin & Lumpkin, 2011). Prior research has been focussing on strategy-making processes and its dimensions. Miller, for example, identified eleven strategy making process dimensions. Some of these are adaptiveness, analysis, integration and risk taking. (Fredrickson, 1986) proposed other dimensions such as proactiveness, rationality and assertiveness in his study on decision-making processes. Lumpkin and Dess (1996) build upon this prior research and constructed a set of strategy making process dimensions that underlies nearly all entrepreneurial processes.

They identified five elements to construct entrepreneurial orientation and they used the following definition:

"Entrepreneurial orientation refers to the processes, practices, and decision-making activities that lead to new entry" as characterized by one or more of the following dimensions: "a propensity to act autonomously, a willingness to innovate and take-risk, and a tendency to be aggressive towards competitors and proactive relative to marketplace opportunities" (Lumpkin & Dess, 1996).

Besides the addition of acting autonomously and being aggressive towards competitors, another difference to the theory developed by Miller (1983) is that in the definition of Miller all three of the elements need to be present. In the conceptualization of Lumpkin & Dess (1996) not all of the elements need to be present, and they do not covary as suggested in earlier research (Covin & Slevin, 1989; Miller, 1983). They vary independently from each other depending on the organizational and environmental context (Lumpkin & Dess, 1996). The unidimensional approach does not explain many forms of entrepreneurial behaviour. Some firms might benefit from copying competitors in a fast way (Winter & Nelson, 1982), or in some circumstances, it might be the best to avoid risk (Brockhaus, 1980). Furthermore, several scholars have developed different typologies for entrepreneurial firms, which describe different ways in which entrepreneurship can manifest itself. Examples are the five typologies of (Schollhammer, 1982) acquisitive, administrative, opportunistic, incubative and imitative.

When business ownership means being an entrepreneur, Cooper & Dunkelberg (1986) argue that the path to the ownership can vary from acquiring a business to being promoted. Moreover, when being promoted, the level of personal risk or innovativeness are not required in at the same level (Covin & Lumpkin, 2011; Covin & Wales, 2011).

For this research, the definition of Lumpkin & Dess (1996) is adopted. The reason being the possibility to test on more elements of entrepreneurship and the ability to test them separately.

STRATEGY-MAKING PROCESS DIMENSIONS

In the same way we need to understand the microfoundations of dynamic capabilities, we also need to understand the underlying dimension of entrepreneurial orientation.

AUTONOMY

Lumpkin and Dess define autonomy as follows:

"Autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion" (Lumpkin & Dess, 1996)

Autonomy is important since many new ventures are started by individuals or individuals in organizations. These individuals do not constrain themselves with the instructions of managers or bosses and organizational processes. Autonomous behaviour can take place in different ways, the first one are entrepreneurial actions taken by a strong leader, similar to the command mode of (Hart, 1992) (Lumpkin & Dess, 1996). This type of autonomous action typically takes place in smaller firms where the owner/manager is the visionary leader determining the road ahead. Secondly, autonomous entrepreneurial action can also be generated in lower levels of the organization and passed on the higher management, this can be described as individual entrepreneurship as defined by (Brodwin, 1984) (Lumpkin & Dess, 1996)

INNOVATIVENESS

One of the first to emphasize the role of innovation in the entrepreneurial process was Schumpeter (1942), he described a process of "creative destruction". During this process, existing market structures were disrupted by the introduction of new products or services. Causing a shift of resources from the established firms to the new firms causing them to grow resulting in wealth creation. The centre of this process was entrepreneurship, focusing on the entry of innovative new combinations of resources that pushed forward the evolution of the economy (Schumpeter, 1934). Lumpkin & Dess (1996) use the following definition.

"Innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services or technological processes (Lumpkin & Dess, 1996).

Innovativeness is not limited to technological innovation but it as well encompasses innovation in services, product/market combinations and competencies in technology and production methods and the development of advanced manufacturing processes (Lumpkin & Dess, 1996), this is an addition to the Miller (1983) concept.

RISK TAKING

Risk taking has been associated with entrepreneurship from a very early stage in literature. Early scholars mentioned entrepreneurship and argued that the principal element of distinction between employees and entrepreneurs is the tendency to take risk in the shape of the uncertainty self-employment (Lumpkin and Dess, 1996). Lumpkin and Dess (1996) adopt the three types of risk as described by (Baird & Thomas, 1985). The first one being "venturing into the unknown, the second one "committing a relatively large portion of assets "and the last one "borrowing heavily". The first element of risk is singled out since it is related to personal risk, social risk or psychological risk, the others are financial risk and are more often used in financial analysis of risk (Lumpkin and Dess, 1996). The focus on financial risk is well described and has reached a general point of agreement amongst scholars. A regularly used definition of risk taking is:

"The degree to which managers are willing to make large and risky resource commitments- i.e., those which have a reasonable chance of costly failures" (Miller & Friesen, 1978)

PROACTIVENESS

Proactiveness is an important element of entrepreneurship, simply following market changes or competitors does not make a firm entrepreneurial although they might engage in new markets or launch new technological products (Covin & Wales, 2011). Proactiveness has been recognized as an important part of the entrepreneurial process since Schumpeter emphasized its importance and it has been repeated in different ways by other scholars. Taking advantage of the first mover principle, anticipating changes in markets and pursuing new opportunities is a major characteristic of entrepreneurship (Lumpkin & Dess, 1996). A definition of proactiveness is:

"Acting in anticipation of future problems, needs, or changes" (Mish, 1983).

Lumpkin and Dess (1996) adopt the definition of (Venkatraman, 1989) who defined that proactiveness refers to processes aimed at anticipating and acting on future needs by:

"seeking new opportunities which may or may not be related to the present line of operations, introduction of new product and brands ahead of competition, strategically elimination operations which are in the mature or declining stages of life cycle" This does not mean that they need to be the first but among the first, the firm is a leader rather than a follower (Lumpkin & Dess, 1996).

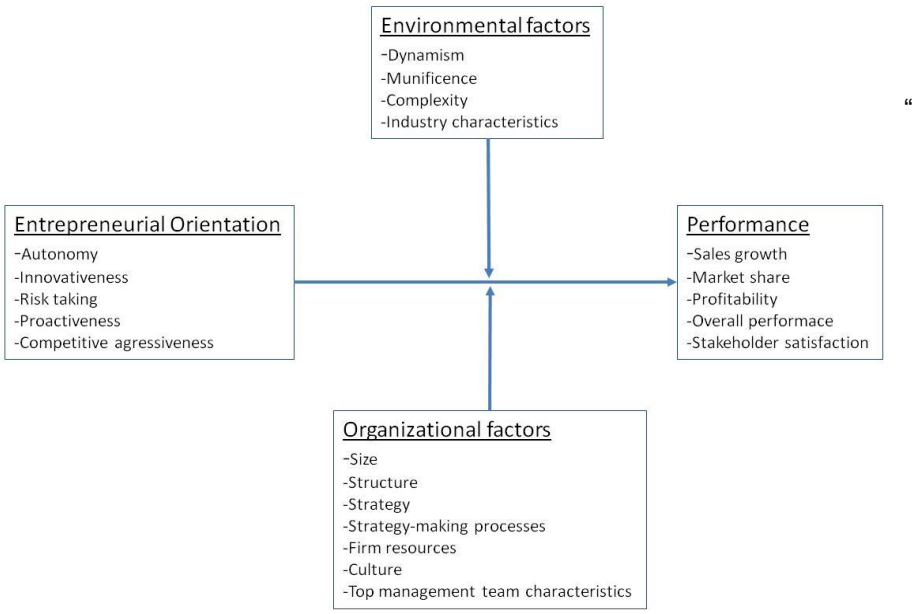
COMPETITIVE AGGRESSIVENESS

Many new firms or ventures have difficulties surviving. They are susceptible for the “liability of newness” (Aldrich & Auster, 1986; Stinchcombe & March, 1965). Their survival rate is lower than established firms (Aldrich & Auster, 1986). Therefore, these new and small firms need to exhibit a more aggressive stand towards competitors and suppliers in order to survive (MacMillan, 1982; Porter, 1980). This competitive aggressiveness is the fifth element in entrepreneurial orientation that is often mentioned in literature. Competitive aggressiveness differs from proactiveness in the way that competitive aggressiveness focuses on the competitors and suppliers and proactiveness on the market (Lumpkin & Dess, 1996). Competitive aggressiveness encompasses several elements, a firm’s tendency to challenge competitors directly and intensely, and a willingness to be unconventional in its actions in order to outperform its competitors. Examples are lowering prices in reaction to competitors, immediately entering markets identified by competitors, or analysing and attacking competitors on their weaknesses (Cooper & Dunkelberg, 1986; Lumpkin & Dess, 1996). The importance of competitive aggressiveness was confirmed in a study in the US where it explained about 37% of the variance in performance of firms, which was considerable higher than other dimensions (Dean, Thibodeaux, Beyerlein, Ebrahimi, & Molina, 1993).

In order to identify all these degrees of entrepreneurship, the five elements of entrepreneurial orientation are key elements but can vary in their presence and strength in a given context (Lumpkin & Dess, 1996).

Lumpkin and Dess (1996) developed a conceptual framework of entrepreneurial orientation to guide further empirical research of the relation between entrepreneurial orientation and firm performance, figure four depicts this framework.

Figure 4: Entrepreneurial orientation conceptual model (Lumpkin & Dess, 1996)



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SUMMARY

Entrepreneurial orientation is part of the research stream in entrepreneurship research looking at how entrepreneurs act. There are two different ways to conceptualize entrepreneurial orientation, unidimensional originating from the work of Millar (1983) and multidimensional originating from the work of Lumpkin & Dess (1996). Millar describes three elements being part of the construct being innovativeness, risk taking and proactiveness. A company will only be truly entrepreneurial when all these three elements are present at the same time. Lumpkin & Dess (1996) add autonomy and competitive aggressiveness to the elements underlying entrepreneurial orientation. The main difference is that they consider entrepreneurial orientation to be a multilevel construct. Not all elements of the construct need to be present for a company to be entrepreneurial. Some situations might only require a few elements depending on the market situation. The definition of Lumpkin & Dess (1996) is used in this research and it is defined as follows:

"Entrepreneurial orientation refers to the processes, practices, and decision-making activities that lead to new entry" as characterized by one or more of the following dimensions: "a propensity to act autonomously, a willingness to innovate and take-risk, and a tendency to be aggressive towards competitors and proactive relative to marketplace opportunities" (Lumpkin & Dess, 1996).

HYPOTHESIS DEVELOPMENT AND THEORETICAL FRAMEWORK

Both entrepreneurial orientation and dynamic capabilities explain superior business performance in changing environments as a single theory. The next section of this thesis explores these links and derives hypothesis for this research.

THE EFFECT OF DYNAMIC CAPABILITIES ON SME PERFORMANCE.

The focus of this study is on SMEs. The reason is that several studies through the years pointed out the importance of SMEs to the economy. Storey (1994) illustrated the importance of small firms in the UK, not only in the financial contribution they make, but as well the number of people they employ (Storey, 1994). This does not only apply to the UK, it also applies to Western Europe and developing countries (Larsen & Lewis, 2007; Pett, Wolff, & Sié, 2012). Figures of the Netherlands show an even bigger proportion of SMEs, only 0.1% of the Dutch corporations are large corporations. Moreover, they are gaining in importance, the number of large corporations is slowly reducing and the number of SMEs is rising. The main reason is the increase of single employee companies. (KvK, 2015). Besides their number, joint turnover and people they employ, SMEs produce more innovations compared to large firms; some studies found numbers of 2.5 times higher than large firms (Aldrich & Auster, 1986; Larsen & Lewis, 2007).

As mentioned earlier SMEs encounter barriers related to the liability of smallness and in case of new companies the liability of newness. On the one hand, being small does not necessarily mean the company has a disadvantage. For instance, scholars have asserted that market oriented SMEs have an advantage over larger firms due to their closeness to customers, which enables them to translate their needs more quickly and more flexible. The lower number of organizational layers enables fast transfer of information from the market to management of SMEs. The other way around, marketing plans can be implemented faster because of the lack of organizational layers and bureaucracy (Keskin, 2006).

On the other hand, small companies are exposed to several barriers they need to overcome. These are described as liabilities of smallness. Start-ups combine this with the liability of newness. Companies that combine these two liabilities have a high dissolution rate (Aldrich & Auster, 1986). A study of the US mortality rate amongst companies, shows a 63% mortality rate for companies aged between zero and four years and with a size of up to 20 employees (Birch, 1979). There was even a direct relationship reported for US retailers between firm size and survival rates (Star & Massel, 1981). Aldrich and Auster (1986) describe the liability of smallness as being four major problems, the first one being the problem of raising capital. Finding investors that dare to invest in small, inexperienced companies is a challenging task for a larger number of SMEs. When they find investors, the interest rates are high and thus the cost is higher. It is also a major reason for business failures (Birley et al., 1995). The second problem is tax laws, they favour large corporation and work against the survival of smaller ones. Selling their company

is financially attractive due to tax laws (Birley et al., 1995). The third problem is government regulation, these regulations weigh heavy on small companies, the burden of dealing with several levels of administration is easier to deal with when having enough employees to handle this. The fourth problem is that small organization face difficulties to find and retain good employees. An example of the consequence is the presence of marketing skills. It is of great importance to develop product and services with customer and investors needs in mind and therefore market knowledge needs to be acquired. In smaller companies this is sometimes missing (Larsen & Lewis, 2007). Management expertise, or missing expertise and personal characteristics of the manager/owner of the SME often proof to be another reason for business failure (Birley et al., 1995). Skill, experience, determination and good judgement can make or break a project. Inexperienced or untrained manager can ruin businesses (Foley & Green, 1995; Keogh & Evans, 1998)

In general, large corporation can offer higher salaries, a more stable environment and more opportunities for career development. Being small often means that when a new employee joins the company, proper training cannot be given.

The liability of smallness does not describe all barriers an SME has to deal with. The owner's personality can be a barrier. Their striving for independence can manifest itself as an autocratic, egocentric and unpredictable manager (Beaver & Prince, 2004). Finally, the size of the SME in relation to their suppliers and customers makes that they can exercise extensive power on the SME, making their position weak (Keskin, 2006). A short non-exhaustive list of barriers can be found in the appendix.

The barriers SMEs are facing make it difficult to develop and maintain dynamic capabilities. Dynamic capabilities are costly to maintain; they typically require long-term commitments of specialized resources that do not immediately bring short-term gain. They require high levels of time, managerial attention and operational cost. Moreover, when managers wrongfully deploy these capabilities the results can be devastating (Zollo and Winter, 2002; Winter, 2003; Ambrosini and bowman, 2009). This would make the presence of dynamic capabilities in SMEs less likely since according to the liability of smallness have difficulties to find funding and qualified employees.

On the other hand, Zahra (2006) described dynamic capabilities in SMEs to be present but in a different way. Zahra et al. (2006) researched the use of dynamic capabilities in new ventures compared to established companies. Although this cannot be seen as an exact parallel between large companies and SMEs, it will come close as new ventures tend to be of limited size. New ventures and established companies will have two main reasons for different dynamic capabilities, age and size. Zahra (2006) compares dynamic capabilities in new ventures and established companies. Moreover, he concluded that dynamic capabilities in SMEs are present but different. They are less complex; they develop via trial and error, imitation and improvisation instead of via deliberate (Zahra et al., 2006). Established companies have many complex configurations of the dynamic capabilities, triggered by repeated failures

and major changes in the competitive landscape when competitors leapfrog them. Learning takes place from experience and dynamic capabilities are developed in a controlled and planned way not neglecting the current capabilities and resources (Zahra et al., 2006). An overview can be found in the appendix

There are several other studies that confirm the presence of dynamic capabilities in SMEs (Døving & Gooderham, 2008)

Based on this information the presence of dynamic capabilities in SMEs is very likely, and the positive influence of dynamic capabilities whether direct or indirect is proven as well. If this is also the case in the in the population of this research needs to be tested.

Hypothesis 1: Dynamic capabilities have a positive effect on the performance of SMEs.

The hypothesis is divided into four underlying hypothesis testing the influence of the four elements of which the constructs consists of based on the operationalisation of Pavlou and el Sawy (2011).

Hypothesis: Sensing (1a), Learning (1b), Integrating (1c), and Coordinating (1d) capabilities have a positive effect on the performance of SMEs

THE EFFECT OF ENTREPRENEURIAL ORIENTATION OF FIRM PERFORMANCE

The relationship of entrepreneurial orientation and performance has been researched many times over the last years. Research took place in many countries, starting in the USA and gradually spreading to other countries in the world (Kraus, Rigtering, Hughes, & Hosman, 2012). In countries like Finland (Jantunen, Puumalainen, Saarenketo, & Kyläheiko, 2005), Sweden (Wiklund & Shepherd, 2003, 2005) and The Netherlands (Kemelgor, 2002; Stam & Elfring, 2008) research has been conducted. The relation between entrepreneurial orientation and performance has not always been straightforward (Kraus et al., 2012). Rauch et al (2009) researched 51 papers on the relationship of entrepreneurial orientation and firm performance. Out of the 51 papers only 5 did not find a significant relationship, all other found a relationship between entrepreneurial orientation and firm performance (Kraus et al., 2012). The studies conducted in the Netherlands (Kemelgor, 2002; Stam & Elfring, 2008) did find positive relationships but not as significant compared to other studies. Kemelgor (2002) found that the relationship was only partial and not as strong as in US firms. Stam & Elfring (2008) found a strong relationship but this was moderated by the social capital. In all studies several moderating factors are investigated, Lumpkin and Dess (1996) already hinted towards these factors in their research framework depicted in figure 3. A conclusion drawn by Wiklund and Shepherd (2005) is that entrepreneurial orientation may sometime, but not always, contribute to improved performance. The study of Rauch et al (2009) leads to the conclusion that this positive relation does exist. Their relation varies depending on the environment and situation and this has to be taken into consideration in research (Kraus et al.,

2012). There is mixed evidence on the importance of entrepreneurial orientation in the relation to business performance, therefore the relation is tested in this study resulting in the following hypothesis:

Hypothesis 2: There is a positive relationship between entrepreneurial orientation and SME business performance.

Lumpkin and Dess (1996) stated that not all elements have to be present and they might vary depending on the circumstances and Covin et al (2006) argue that including the sub dimensions in the model could lead to new theories. For this reason, not only the first level construct of entrepreneurial orientation is tested a multidimensional model is tested with all five elements discussed.

Hypothesis: There is a positive relationship between autonomy (2a), innovativeness (2b), risk taking (2c), proactiveness (2d), competitive aggressiveness (2e) and SME business performance.

THE MODERATING EFFECT OF DYNAMIC CAPABILITIES ON THE RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION AND SME BUSINESS PERFORMANCE.

Many moderating factors have been researched in the past years, dynamic capabilities can be one of these moderating factors. Entrepreneurial orientation creates chances for businesses. Miller (1983) and Lumpkin & Dess (1996) already indicated moderating factors between entrepreneurial orientation and firm performance. Miller suggested intensive use of structural integration devices and Lumpkin & Dess (1996) refer to this as integration of activities. This link makes sense since changing the way a business operates is not only done via the entrepreneurial orientation, something actually needs to change in the way the business operates. Other resources need to be deployed or in different ways, new knowledge needs to be turned into products or services or new business models need to be implemented. On the other hand, Teece (2012) describes dynamic capabilities being dependant on entrepreneurial individuals instead of in routines in some cases. According to Teece (2012) this applies on situations where the organizations are smaller and younger, or in other words the larger and older the organization the greater the importance of routinized dynamic capabilities (Teece, 2012). To test which direction of thought is correct the following hypothesis is created:

The following hypothesis is tested to confirm or reject this relationship between dynamic capabilities and entrepreneurial orientation.

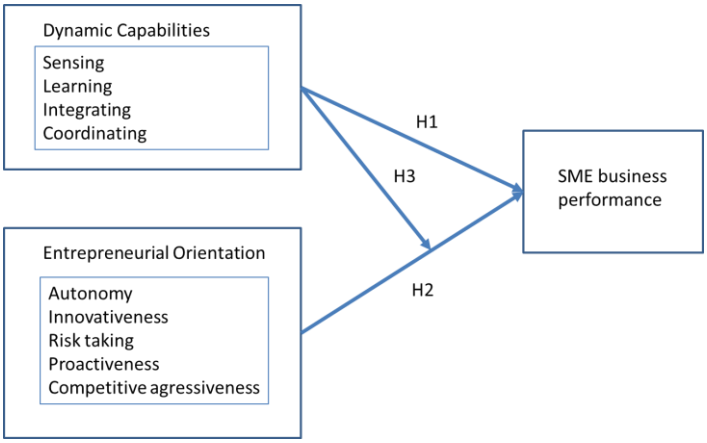
Hypothesis 3: There is a positive effect of dynamic capabilities on the relationship between entrepreneurial orientation and SME business performance.

In other words, dynamic capabilities and entrepreneurial orientation strengthen each other effect on SME business performance.

Dynamic capabilities in the definition of Teece (2007) consist of three dimensions, sensing, seizing and transforming, which is operationalized by Pavlou and El Sawy (2011), resulting in four dynamic capabilities and underlying processes. These dynamic capabilities are, sensing, learning, integrating, and coordinating. Hypothesis 3a test the effect of dynamic capabilities as the aggregated construct on the relationship between entrepreneurial orientation and SME business performance. Literature indicates that from the dynamic capabilities, the integration or transforming capabilities as being the relevant dimensions (Teece, 2012; Covin & Lumpkin, 2011). Therefore, the single dimensions of dynamic capabilities are as well tested to find out what their effect is on the relationship between entrepreneurial orientation and SME business performance. The combination of integrating and coordinating capabilities make up the transforming capabilities in the definition of Teece (2007) (Pavlou and El Sawy, 2011). Figure 5 shows the conceptual model that summarizes the tested hypothesis in this thesis.

Hypothesis: There is a positive effect of sensing (3a), learning (3b), integrating (3c), and coordinating (3e) capabilities on the relationship between entrepreneurial orientation and SME business performance.

Figure 5: Conceptual framework of the research



CHAPTER 3: RESEARCH DESIGN

To test this study's hypothesis regarding the relation between dynamic capabilities and entrepreneurial orientation on SME business performance. And in addition, the moderating effect of dynamic capabilities on the relation between entrepreneurial orientation and SME business performance, a self-completion questionnaire was send out to independent businesses operating in the installation business in the Netherlands. The following paragraphs describe the research design of this study.

SAMPLE

Entrepreneurship research has focussed on different organizational levels, from individuals to total organizations. New entry as the essential act of entrepreneurship is a firm level phenomenon and applies upon individuals, small firms, business units and whole companies, therefore being a business level strategy. This is in line with classical economic theory in which the individual entrepreneur is regarded as a firm, and in line with (Schumpeter, 1942) when applying it on non-diversified business units' patterns (Covin & Lumpkin, 2011; Lumpkin & Dess, 1996; Miller, 1983). Entrepreneurial orientation is widely considered as being a firm level attribute that is recognizable through the exhibition sustained entrepreneurial behavioural patterns (Covin & Lumpkin, 2011; Lumpkin & Dess, 1996; Miller, 1983). The level of analysis for this research is firm level or independent business unit. The questionnaire was send out to business owners, general managers or high-ranking managers in the independent business units.

Why choose the Dutch Installation Industry for this study? There are several reasons to do so, the first reason is the moderately turbulent to turbulent market. The Dutch market as a whole went through a crisis starting in 2009 and is just barely showing signs of recovery. Consumer and producer confidence are on the rise again (USP marketing consultancy: De Vrijer, 2014). During these crisis years, the total number of companies in the installation industry reduced with 8% and companies with 6 or more employees reduced even with 15% (Uneto-VNI, 2015). These markets will start growing again in second and third quarter of 2015 in a positive scenario and in a pessimistic scenario only in the second quarter of 2016. This will mean that even more companies will go out of business (Uneto-VNI, 2015).

Since the beginning of the crisis, real innovation or industry changing trends did not take place, but there is a change expected. The UNETO-VNI, the branch organization for the installation industry conducts a study every few years mapping the trends affecting the way the companies in the industry will do their business in the future. These trends are, the current economy drives innovation and this will apply to the installation business. The emphasis on global warming and living and working environment will change the way we consume energy or generate heat and hot water. The internet of things will change the ways companies interact with their customers and opens up opportunities for new services (Uneto-VNI, 2015; USP marketing consultancy: De Vrijer, 2014). The demography of the Netherlands shows a

continuously aging population; this will affect the type of housing and the energy consumption. People tend to conform less to groups and traditional ways of living and will start living more individualistic, this shows in the increasing number of one person households, changing the way energy is consumed. The companies itself will also drive change, their drive for growth and increased competition will increase innovation. These trends translate into areas of change for the companies, integral installation, the renovation evolution, comfortable living, intelligent energy supplies, new business models and installation the new style (OTIB, 2014). In this context, it is not relevant to describe these changes in detail but it is important to understand the many changes the industry went through and will go through in the future.

Economic downturn, changing market conditions and trends that force companies to change makes this market moderately turbulent or turbulent, which means that dynamic capabilities are relevant in this market (Eisenhardt & Martin, 2000; Teece et al., 1997). Choosing one industry allows the elimination of the variable market dynamism and other market related variables since they are all the same for these businesses.

The second reason is the size of the companies. The total number or businesses in the installation industry totals about 8000 and in 94% of the cases the size is less than 100 employees (ITS / OTIB, 2015). A large part of these businesses are SMEs according to the definition of (Verheugen, 2005).

The last reason is the relatively conservative market. The companies in the industry tend to focus on cost reduction in times of economic downturn instead of product or service innovation. In the years 2009 to 2012, the focus was reduction of employees in order to reduce cost, mainly focused in reduction of temporary labour and overtime, respectively 36% and 34% of the companies questioned. More innovative ways of workforce management were considered only in 12% of the companies. When we look at the companies not from a cost point of view but a turnover perspective, how do they find additional turnover? This shows that these companies were not very innovative in that sense, the majority tried to find different work within the same industry with existing products or services (22%), only 4% tried to expand their business outside of the industry. Developing new services or products and spending time on employee qualification has been less popular amongst companies, only 16% and 11% of the companies looked at these measures. This paints a conservative picture of the industry, considering the market is shrinking, however figures show a change in specifically the innovation of new products and services from 2013 onwards, 26% of the companies try to increase their turnover through innovation (ITS / OTIB, 2015). When entrepreneurial orientation and dynamic capabilities make a difference in performance, these companies are expected to stand out.

Summarizing, the installation industry in the Netherlands is experiencing at least a moderately turbulent market, consists of a high percentage of small to medium sized enterprises which is influenced by several external factors driving change and the businesses have been slow in reacting to change.

DATA COLLECTION

To collect a sufficient amount of cross-sectional data from a large number of participants, this to ensure generalizability of the results, a survey approach was chosen (Bryman & Bell, 2011). The survey was digitally send out to a total of 4.320 businesses. The addresses are acquired via the UNETO-VNI, which is the branch organization of the Dutch installation business, and the customer database of Bosch Thermotechniek B.V., a manufacturer delivering to these installers.

To increase the response, rate all questionnaires were accompanied with a personal cover letter, containing information on the subject, the purpose and how the result can be useful for their companies. The participant was ensured that their responses were stored and analysed anonymously and they would receive a copy of the results when the research was finished.

Prior to administering the questionnaire, the preliminary questionnaires were tested with three installers to make sure the questions were understood and clear. A pre-test was done on 500 recipients to test the cover letter. After some changes the questionnaire was send out to all recipients, followed by a first and second reminder for those that did not open the mail.

Table 3: Response report

Report Analysis	
Sample size	4320
Non-response	4012
- Unknown reason	3428
- Undeliverable	200
- Opted out	384
Returned questionaires	308
- Incomplete	99
- Completed	209
Net result	4.80%

Table 4: Characteristics of respondents and their firms

Respondent	Job title	Ow ner	88.90%	Project manager	1.60%
		Managing director	2.30%	Calculator	1.00%
		Service mechanic	0.00%	Other	4.90%
		Department head	1.30%		
Firm	# employees	1-10	84%	101-200	2%
		11-20	5%	201-500	2%
		21-50	7%	>500	1%
		51-100	1%		
	Turnover €	<100K	28%	>1Mio-<2Mio	4%
		>100K - <200K	26%	>2Mio-<5Mio	6%
		>200K-<500K	19%	>5Mio-<10Mio	2%
		>500K-<1Mio	10%	>10Mio	4%

In total 308 responses were received of which 221 completed. After further examination of these results another 12 respondents are left out since they skipped a few questions crucial for analysis. In total 209 responses are considered in further analysis. Of the respondents 88.9% are owner of the business, the size of the businesses is in 84% of the case smaller than 11 employees, which is in line with the data received from the Dutch central statistics bureau. 83% of the businesses have a turnover smaller than 1 million Euro, and these businesses are on average 24.05 years old. These numbers can be found in table 3 and 4.

The businesses score the market as being moderately turbulent, with a score of 3.6 on a five-point scale. On average these companies seem to do relatively well, on SME business performance they have an average score of 3.9 on a five-point scale. They score themselves slightly higher on dynamic capabilities compared to entrepreneurial orientation; this is mainly due to relatively low scores on proactiveness and competitive aggressiveness. Table 5 shows these results.

Table 5: Respondent firm characteristics

	(Scale 1-5)	Average	Std. Deviaton
Business characteristics	Age/years	24.05	24.18
	SME business performance	3.91	0.59
	Market turbulence	3.34	0.59
Dynamic Capabilities	Total	3.60	0.68
	Sensing	3.37	0.81
	Learning	3.39	0.74
	Integrating	3.76	0.80
	Coordinating	3.87	0.84
Entrepreneurial Orientation	Total	3.34	0.53
	Autonomy	3.35	0.85
	Innovativeness	3.77	0.63
	Risk taking	3.34	0.79
	Proactiveness	2.85	0.71
	Competitive agressiveness	2.82	0.79

N=205

SAMPLING AND METHOD BIAS

The following considerations were taken into account and tests were performed to establish whether sampling and response bias was present in the sample.

SAMPLING BIAS

The survey was send to the known email addresses of the businesses, in some cases it was not clear wat the functions is of the recipient. To make sure that there are no differences in responses based on the function of the respondent several tests are run. There are no differences expected between the groups (H_0: $\mu_1 = \mu_2$ and H_a: $\mu_1 \neq \mu_2$). The groups being owner of the business, and since almost 90% of the respondents are the owner, all other categories are grouped together as others. The comparison is made for SME business performance (SMEBP), market turbulence (MT), entrepreneurial orientation (EO) and dynamic capabilities (DC). (Table 6 represents the t-test outcomes based on the corresponding Levenes test result). In addition, an analysis of variances is executed (ANOVA). The F-statistics obtained and the t-test did not show any significant differences between the means of the groups at $p < 0.05$. These result indicate that there no reason for great concern about the differences of these two groups.

Table 6: Sampling bias on function of respondent

	Owner		Others		Levene's Test		t-test for Equality of Means		
	Mean	SD	Mean	SD	F	Sig.	t	df	Sig. (2-tailed)
SMEBP	3.9117	0.60627	3.9667	0.49587	0.183	0.669	-.373	204	0.71
MT	3.3333	0.74614	3.3241	0.59812	0.331	0.566	0.051	206	0.959
EO	3.3621	0.54717	3.4778	0.49626	0.092	0.762	-.862	198	0.39
DC	3.4973	0.65022	3.6182	0.5469	0.885	0.356	-.762	192	0.447

NON-RESPONSE BIAS

For collection of the data a first request is send out to the respondents and five days later a reminder is sent to those that did not respond to the first email. To test whether there are significant differences between these two groups an independent t-test is executed for the groups that responded to the first email and to the reminder. No significant difference is expected between the group of respondents on the first invitations and the respondents to the reminder (H_0: $\mu_1 = \mu_2$ and H_a: $\mu_1 \neq \mu_2$). The comparison is again made for SME business performance (SMEBP), market turbulence (MT), entrepreneurial orientation (EO) and dynamic capabilities (DC) (Table 7 represents the t-test outcomes based on the corresponding Levenes test result.). In this case, the F-statistics obtained and the t-test did not show any significant differences as well between the means of the groups at $p < 0.05$.

Table 7: Non-response bias

	1st invitation		Reminder		Levene's Test		t-test for Equality of Means		
	Mean	SD	Mean	SD	F	Sig.	t	df	Sig. (2-tailed)
SMEBP	3.9023	0.64552	3.9267	0.56147	1,063	0.304	-0.288	204	0.774
MT	3.2853	0.74193	3.3678	0.72805	0.002	0.963	-0.817	206	0.415
EO	3.3283	0.61126	3.4058	0.48466	3,385	0.067	-1,001	198	0.318
DC	3.5908	0.63213	3.4543	0.64378	0.311	0.578	1,456	192	0.147

MEASUREMENT AND VALIDATION OF CONSTRUCTS.

The questionnaires and measurement scales used for this thesis are derived from existing questionnaires and scales from scholars, which have proven itself in several studies. The questions have been adjusted to the context and industry where needed and are translated into the Dutch language, appendix V, VI, VII, VIII shows the used questionnaires.

DEPENDENT VARIABLES

SME business performance is the dependant variable used in this thesis.

Business performance is a construct in the heart of strategic management research and can be conceptualized using two elements; measuring financial performance and organizational effectiveness, or a combination of both. Primary and secondary sources bring four possible conceptualizations of business performance, being use of financial and operational indicators with data from secondary sources, use of financial indicators with data from two sources, use of financial and operational indicators with data from primary source and the use of operational indicators with data from two sources (Venkatraman & Ramanujam, 1986). This research focusses on SME in the Dutch installation sector, secondary data on these companies is hardly available and therefore this research collects data from primary sources, being the SME itself. Both operational and financial performance indicators are used in this research. Using these indicators makes it possible to operationalize performance in a comprehensive way and when companies do not want to share financial data, the operational data is often available. On the other hand, using only one data source limits the possibility of verifying the data (Venkatraman & Ramanujam, 1986). Scales proposed by Venkatraman & Ramanujam (1986) are used to measure the SME business performance, this is a five items scale. Tests on reliability and validity show $\alpha = 0.79$ and the item correlation was positive and significant ($p < 0.001$) showing strong support for both reliability and validity (see appendix IX).

INDEPENDENT AND MODERATING VARIABLES

The independent variables the research uses are entrepreneurial orientation and dynamic capabilities.

For entrepreneurial orientation, five first order reflective measurement scales are used to capture the multidimensional elements of the conceptualization of Lumpkin and Dess (1996). For this purpose, the (Hughes & Morgan, 2007) entrepreneurial orientation scale is used, these scales have proven themselves in practice (Covin & Wales, 2011). This approach recognizes the multidimensionality of the construct. It enables a more detailed analysis of the five elements of entrepreneurial orientation and makes it possible to plot the results in a scale, additionally it makes it possible to investigate the effect of the five elements in relation to dynamic capabilities and business performance (Covin & Wales, 2011). The higher level construct of entrepreneurial orientation is calculated in two steps, the first step is to calculate the average score of each of the five elements, being risk taking, innovativeness, proactiveness, competitive aggressiveness and autonomy. In addition, in the second step averaging these scores to the construct of entrepreneurial orientation. The underlying five elements and entrepreneurial orientation are tested for validity and reliability. The results show an $\alpha = 0.885$ and positive and significant correlation between the items ($p < 0.001$), when excluding one item the α increased to 0.889. This supports validity and reliability of the scales used

The second independent variable are the dynamic capabilities of sensing and seizing and transforming these are moderating variables in this research model. For these variables, the measurement model of (Pavlou & El Sawy, 2011) is used, and it is adjusted to the Dutch installation industry, incorporating services as possible new products. There are a few measurement scales used in research, and those that are used have been adjusted to that specific context. This makes them difficult to use in another situation. The higher-level construct of dynamic capabilities is calculated in two steps, the first step is to calculate the average score of each of the three elements, and in the second step averaging these scores to the construct of entrepreneurial orientation. The underlying three elements and dynamic capabilities scale are tested for validity and reliability. The results show a $\alpha = 0.944$ and positive and significant correlation between the items ($p < 0.001$). This supports validity and reliability of the scales used (Details can be found in appendix IX)

To check the proper grouping of the questions on to the several components that make up entrepreneurial orientation and dynamic capabilities, a factor analysis is run. The analysis showed no reason to deviate from the components proposed by the original authors of the questionnaires (details see appendix X and XI). Although, the items used to create integrating and coordinating capabilities are positively correlated and could be grouped together, the choice is made not to do so. Since, the constructs are highly related, but they are theoretically and empirically distinct (Pavlou and El Sawy, 2011).

CONTROL VARIABLES

In new venture research, age and size are frequently used as control variables (Zahra et al., 2006). Size is the variable of interest in this study and its effect on the entrepreneurial orientation and dynamic capabilities in relation to transformation capabilities and business performance. Environmental turbulence is another variable influencing the effect of entrepreneurial orientation and dynamic capabilities but since the research was done in one market, the effect will be the same for all businesses. However, in order to be sure if all companies perceive the turbulence in their industry as the same, it is tested. The scale used for market turbulence is the scale of Pavlou and El Sawy (2011) this is a six item scale. The test for reliability and validity show $\alpha = 0.787$ and with positive and significant correlation ($p < 0.001$) the measurement support reliability and validity of the scale.

ANALYSIS

This study used several methods for data analysis. In the first step, t-test and analysis of variance were used to control for sampling and method bias, the t-test for differences in means and the ANOVA in differences in variances.

Linear regression analysis is used to test the individual effect of entrepreneurial orientation and dynamic capabilities on SME business performance. Multiple linear regression is used to test the effect of the individual elements of both constructs on SME business performance.

The multiple regression modelling was done based on several methods to obtain the best possible fit to the data. The stepwise approach was used for model building. Hierarchical and forced model building are used to avoid overfitting and under fitting. The potential of collinearity was explored, none of the correlations were above the $\alpha = 0.80$ threshold, which does not indicate any collinearity issues. A VIF analysis was run to detect collinearity between the several factors used in the multiple linear regression.

The outliers are controlled via a Mahalanobis distance analysis of residuals, resulting in four outliers, which are excluded, from further analysis

The linearity of the model is checked by a plot of the standardized residuals against the standardized predicted values (*ZRESID and *ZPRED).

CHAPTER 4: RESULTS

This chapter lists the results of the data analysis and the hypotheses testing. It will not only list the primary results, in addition it will also state the results of a deeper look into the separate effect on the second level constructs on SME business performance. This chapter lists a correlation table, and regression tables. Additional data can be found in the appendix.

Table 8 presents the descriptive statistics and bivariate correlations.

Table 8: Correlations

		Mean	Std. Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	SME business performance	39.117	.58935															
2	Company age	24.05	24.183	-.118														
3	Market turbulence	3.3376	.72971	.251**	.036													
4	Employees (#)	1.42	1.188	-,018	.414**	-.021												
5	Entrepreneurial Orientation	33.429	.52779	.480**	-.043	.330**	.067											
6	Dynamic Capabilities	35.961	.68322	.435**	.074	.290**	.110	.675**										
7	EO Risk	33.220	.78669	.344**	-.069	.296**	.020	.714**	.461**									
8	EO Innovativeness	37.696	.63445	.428**	-.059	.257**	.030	.823**	.619**	.469**								
9	EO Proactiveness	28.484	.71134	.302**	-.013	.231**	.112	.668**	.353**	.271**	.417**							
10	EO Agressiveness	28.236	.79343	.268**	-.010	.231**	.121	.587**	.286**	.224**	.309**	.956**						
11	EO Autonomy	33.517	.85164	.312**	.026	.185**	.034	.676**	.513**	.415**	.417**	.182**	.156*					
12	DC Sensing	33.675	.81268	.360**	.005	.262**	.101	.627**	.825**	.383**	.630**	.410**	.329**	.360**				
13	DC Learning	33.934	.73573	.287**	.038	.235**	.056	.537**	.828**	.316**	.526**	.318**	.243**	.370**	.682**			
14	DC Integrating	37.563	.80386	.424**	.136	.248**	.161*	.602**	.896**	.454**	.495**	.293**	.248**	.518**	.579**	.625**		
15	DC Coordinating	38.671	.83503	.411**	.072	.249**	.057	.545**	.878**	.421**	.472**	.195**	.163*	.504**	.570**	.562**	.855**	

Note: N = 205, for statistical strength purposes outliers are filtered with Mahalanobis, combining this with Cooks would reduce the statistical strength.
**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlation table shows that both the first level and all second level constructs of dynamic capabilities and entrepreneurial orientation are significantly correlated to SME business performance. The same is valid for the correlation between dynamic capabilities and its second level constructs and entrepreneurial orientation and its second level constructs. There are two things that are important to mention. First, the high correlation between entrepreneurial orientation and the second level constructs of dynamic capabilities, and second the high correlation between the second level constructs of entrepreneurial orientation and dynamic capabilities. It appears they have some commonalities. Lastly, the correlation of the second level constructs of dynamic capabilities and dynamic capabilities itself is very high.

Table 9 presents the multiple regression analysis and the effect on SME business performance.

Table 9: Regression results for entrepreneurial orientation and dynamic capabilities

	SME Business Performance				
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	3.293**	3.677**	3.599**	3.730**	3.811**
Main effects					
Entrepreneurial Orientation centralized		.430**		.296**	.298**
Dynamic Capabilities Centralized			.362**	.207*	.185*
Moderator effect					
Dynamic capabilities centralized					-.145*
Control variables					
Company age	-.146	-.101	-.139	-.119	-.115
Market turbulence	.251**	.109	.144	.092	.076
Employees	.045	-.005	.006	-.013	-.012
Adjusted R Square	.064	.225	.181	.244	.261
R Square Change	.078**	.163**	.118**	.023*	.020*
F value	5.614*	15.513**	11.965**	13.931**	12.759**

Note: N=205, Standardized coefficients are reported (Beta)
*P<0.05, **P<0.001

The baseline model, model 1 in table 9, includes the intercept and the effect of the control variables on SME business performance. Model 2 introduces the independent variable, entrepreneurial orientation, model 3 adds dynamic capabilities as independent variable. These models show the separate effect of the two main constructs on SME business performance. Model 4 builds towards the final model 5 via mean centred effects of the main constructs of entrepreneurial orientation and dynamic capabilities and the moderating effect of dynamic capabilities on the relationship between entrepreneurial orientation and SME business performance.

Both entrepreneurial orientation and dynamic capabilities have a significant effect on the SME business performance, entrepreneurial orientation (β=0.430, $P < 0.001$) and dynamic capabilities (β=0.362, $P < 0.001$). When combined in one model (model 4), the model fit increases to 24.4% compared to 22.5% and 18.1 % separately. On the other hand, their single effect reduces, entrepreneurial orientation (β=0.296, $P < 0.001$) and dynamic capabilities (β=0.207, $P < 0.05$). Both hypothesis 1 and 2 are supported by these results. There is a positive relation between entrepreneurial orientation and SME business performance, and there is a positive relation between dynamic capabilities and SME business performance.

The relation between entrepreneurial orientation and SME business performance is stronger compared to the relation between dynamic capabilities and SME business performance.

Hypothesis 3 is not supported by the results of this analysis, there is negative moderating effect of dynamic capabilities on entrepreneurial orientation (β= -0.145, P<0.05). Meaning, the higher the dynamic capabilities of an SME, the lower the importance of entrepreneurial orientation. Entrepreneurial orientation and dynamic capabilities separately positively affect SME business performance and they do influence each other's effect, the model fit increased to 26%. It was hypothesized that there is a reinforcing effect of dynamic capabilities on the relationship between entrepreneurial orientation, but this cannot be confirmed.

Figure 5 shows the effect dynamic capabilities have on the relation between entrepreneurial orientation and SME business performance.

Figure 5: The moderating effect of dynamic capabilities on the relation between entrepreneurial orientation and SME business performance.

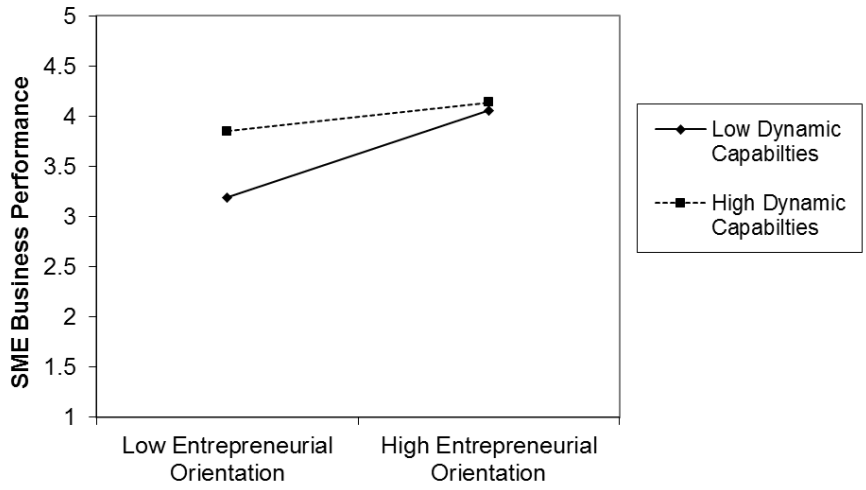


Table 10 and 11 look one step deeper into the effect of dynamic capabilities. Systematically the single effect of the underlying constructs is tested, from control variables to all dependant variables that make up dynamic capabilities. Table 11 shows that only one of the second level constructs of dynamic capabilities has a significant correlation with SME business performance, this is the integrating capability (β= .277, P < 0.001). The model explains about 21% of the variation of SME business performance, which is more than the first level of construct dynamic capabilities (18%). Therefore, hypothesis 1a, b, c, and e are rejected since the correlations are not significant, hypothesis 2d is confirmed

Table 10 show the models testing the moderation effect of sensing, learning, integrating and coordinating on entrepreneurial orientation. These results show that three out of four elements, sensing (β= -.150, P<0.05), learning (β= -.144, P<0.05), and coordinating (β= -.139, P<0.05), have a negative moderating effect on entrepreneurial orientation.

The model containing entrepreneurial orientation and only the coordination capability (both mean centred) has the highest model fit with an adjusted R squared of 0.268. This means that almost 27% of the variation in SME business performance is explained by having an entrepreneurial orientation and strong coordinating capabilities. These results do not confirm the hypotheses 3b, c, d, and e. These single elements do not have a reinforcing effect on the relation between entrepreneurial orientation and SME business performance. It is the other way around, the stronger the single effect, the weaker the relationship between entrepreneurial orientation and SME business performance.

Table 12 takes a detailed look into entrepreneurial orientation, the second level constructs and their impact on SME business performance. In the definition of Lumpkin & Dess (1996), the strategy making processes do not necessarily need to be present at the same time. The results show that all processes have a positive correlation with SME business performance, only innovativeness (β=0.247, P>0.05) has a significant influence on SME business performance. All strategy making processes together explain about 22% of the variation in SME business performance. Therefore, hypothesis 2a, c, d, and e are rejected since the correlation in not significant, hypothesis 2b is confirmed, there is a positive significant correlation between innovativeness and SME business performance.

Table 10: Moderator analysis of dynamic capabilities second order constructs

	SME Business Performance									
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	3.293**	3.677**	3.696**	3.780**	3.684**	3.759**	3.746**	3.807**	3.742**	3.807**
Main effects										
Entrepreneurial Orientation centralized		.547**	.380**	.360**	.414**	.396**	.293**	.285**	.314**	.294**
Sensing centralized			.084	.081						
Learning centralized					.032	.028				
Integrating centralized							.236*	.212*		
Coordinating Centralized									.220*	.195*
Moderator effect										
Sensing centralized				-150*						
Learning centralized						-.144*				
Integrating centralized								-.117		
Coordinating Centralized										-139*
Control variables										
Company age	-.146	-.101	-.101	-.094	-.103	-.099	-.131	-.067	-.122	-.120
Market turbulence	.251**	.109	.103	.084	.107	-.092	.095	-.113	.090	.078
Employees	.045	-.005	-.010	-.008	-.005	-.009	-.023	-.045	-.005	-.004
Adjusted R Square	.064	.225	.225	.243	.222	.238	.256	.265	.255	.269
R Square Change	.078**	.163**	.004	.021*	.001	.020*	.034*	.012	.033*	.017*
F value	5.614*	15.513**	12.640**	11.715**	12.398**	11.429**	14.748**	12.999**	14.668**	13.248**

Note: N=205, Standardized coefficients are reported (Beta)
*P<0.05, **P<0.01

Table 11: Dynamic capabilities second level construct effect on SME business performance

	SME Business Performance				
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	3.293**	2.777**	2.721**	2.480**	2.450**
Main effects					
Sensing		.302**	.262**	.176	.153
learning			.059	-.092	-.089
Integrating				.376**	.277**
Coordinating					.113
Control variables					
Company age	-.146	-.128	-.130	-.160*	-.160*
Market turbulence	.251**	.171	.168*	.135*	.135*
Employees	.045	.006	.008	-.023	-.014
Adjusted R Square	.064	.144	.142	.214	.213
R Square Change	.078**	.083**	.002	.074**	.003
F value	5.527*	9.407**	7.594**	10.094**	8.724**

Note: N=205, Standardized coefficients are reported (Beta)

*P<0.05, **P<0.01

Table 12: Regression result of entrepreneurial orientation second level constructs

	SME Business Performance					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	3.293**	2.812**	2.154**	2.085**	2.080**	2.016**
Main effects						
Risk taking		.273**	.139	.133	.133	.100
Innovativeness			.273**	.273**	.284**	.247*
Proactiveness				.124	.027	.053
Competitive agressiveness					.097	.074
Autonomy						.118
Control variables						
Company age	-.146	-.116	-.099	-.092	-.092	-.100
Market turbulence	.251**	.172*	.130	.114	.111	.107
Employees	.045	.026	.012	-.003	-.005	-.005
Adjusted R Square	.064	.128	.203	.211	.208	.215
R Square Change	.078**	.068**	.077**	.012	.001	.011
F value	5.527*	8.336**	11.168**	9.921**	8.493**	7.838**

Note: N=205, Standardized coefficients are reported (Beta)

*P<0.05, **P<0.01

CONTROL VARIABLES

Of the control variables, company size, company age and market turbulence, the correlation table only show a significant positive correlation between market turbulence and SME business performance, employees (the size of the company) and age of the company do not seem to be correlated. Market turbulence in this case means perceived market turbulence by the respondent since all respondents are working in the same industry and market. The control variables on their own explain 6.4% of the variation in SME business performance.

Looking at table 9, model 1, it seems like the higher the perceived market turbulence the better the SME business performance (β=0.251, P<0.001). At the moment, entrepreneurial orientation is added to the regression model, market turbulence is not a significant influence anymore and this is taken over by entrepreneurial orientation.

CHAPTER 5: DISCUSSION AND CONCLUSION

Why are some companies successful in changing environments and why do others go out of business? Do the rules that are set for large corporations apply to SMEs as well? These smaller companies encounter all kind of barriers that large companies do not need to face, examples are the liability of smallness or the liability of newness (Aldrich & Auster, 1986; Beaver, 2003; Kale & Arditi, 1998). These are questions this thesis sets out to answer, drawing from the body of research of entrepreneurship and dynamic capabilities.

There is a large body of research on dynamic capabilities and entrepreneurship. Both theories try to find sources of sustainable competitive advantage in changing environments. Dynamic capabilities are rooted in the resource based view (Di Stefano, 2014), and are thought to mainly apply on large corporations, since these capabilities are complex processes and smaller firms do not have the capacity, knowledge or money to develop and sustain them (Teece, 2007; Eisenhardt & Martin, 2000). Entrepreneurship research on the other hand focussed extensively on SMEs and on individual entrepreneurs via the different research streams (Stevenson & Jarillo, 1990). Entrepreneurial orientation focusses on the actions taken by entrepreneurs on company or business unit level (Covin & Lumpkin, 2011; Lumpkin & Dess, 1996; Miller, 1983). Some research indicates that dynamic capabilities do apply to SMEs (Zahra et al., 2006), there even are theories that dynamic capabilities are the enabling device for entrepreneurial organizations and their effort to change their resources (Teece, 2012; Covin & Lumpkin, 2011). This research tries to find out if dynamic capabilities and entrepreneurial orientation reinforce each other in the effect on SME business performance. In this way it adds to the lack of research there exists in dynamic capabilities in SMEs and the mutual effect of dynamic capabilities and entrepreneurship on SME business performance. Table 13 shows a summary of the result of the research.

Table 13: Summary of results

Hypothesis	Independent variable	Dependant variable	Theory	Observation	Result
1.	Dynamic capabilities	SME business performance	+	+	Accepted
1a.	Sensing	SME business performance	+	n.s.	Rejected
1b.	Learning	SME business performance	+	n.s.	Rejected
1c.	Integrating	SME business performance	+	+	Accepted
1d.	Coordinating	SME business performance	+	n.s.	Rejected
2.	Entrepreneurial orientation	SME business performance	+	+	Accepted
2a.	Autonomy	SME business performance	+	n.s.	Rejected
2b.	Innovativeness	SME business performance	+	+	Accepted
2c.	Risk taking	SME business performance		n.s.	Rejected
2d.	Proactiveness	SME business performance	+	n.s.	Rejected
2f.	Competitive agressivenss	SME business performance	+	n.s.	Rejected
3.	Dynamic capabilities and entrepreneurial orientation	SME business performance	+	-	Rejected
3a.	Sensing and entrepreneurial orientation	SME business performance	+	-	Rejected
3b.	Learning and entrepreneurial orientation	SME business performance	+	-	Rejected
3c.	Integrating and entrepreneurial orientation	SME business performance	+	n.s.	Rejected
3d.	Coordinating and entrepreneurial orientation	SME business performance	+	-	Rejected

The results of the regression analysis show that both dynamic capabilities and entrepreneurial orientation have a positive influence on the SME business performance. It is worthwhile fostering or developing both. The influence of entrepreneurial orientation on SME business performance is stronger than the influence of dynamic capabilities.

The hypothesis of a reinforcing effect of dynamic capabilities on entrepreneurial orientation based on the work of Covin and Lumpkin (2011), of (Miller, 1983), and Lumpkin & Dess (1996) is rejected. The relationship between the two constructs is the other way around, they do not reinforce each other, they seem to replace each other, the stronger dynamic capabilities get, the less important the relationship between entrepreneurial orientation and SME business performance. This seems to confirm the expectation of Teece (2012), as he describes that dynamic capabilities are being dependant on entrepreneurial individual instead of on routines.

Both dynamic capabilities and entrepreneurial orientation can be broken down in second level constructs. For entrepreneurial orientation, researchers are divided in their opinion if these second level constructs all need to be present in order to be truly entrepreneurial. Miller (1983) argues that all need to be present and Lumpkin and Dess (1996) are of the opinion that only some need to be present. The results of the regression analysis of the second level constructs of entrepreneurial orientation show that not all elements have a significant effect on SME business performance, only innovativeness has a significant positive effect. In this way, entrepreneurial orientation, and the aim to be innovative, is in line with the purpose of dynamic capabilities. Which is responding to market changes or getting ahead of competitors by changing the way the company resources are being used. This might result in new innovative products or in new ways of doing business.

For dynamic capabilities, it looks similar, only one of the single second level constructs has a significant effect on SME business performance, the integrating capability. The influence of the combined second level constructs is stronger than the first level construct. There is a moderating effect of three out of the four second level constructs on the relation between entrepreneurial orientation and SME business performance. Only the integrating capability does not seem to have a significant correlation. Integration capabilities are related to the combination of individual knowledge into the company's assets and resources (Pavlou and El Sawy, 2011). Apparently collecting individual inputs, creating a common understanding and routinizing the processes needed to use the new knowledge has a positive effect on SME business performance and it does not influence the relation between entrepreneurial orientation and SME business performance significantly. The sensing capability, learning capability and coordination capability all appear to influence the relation between entrepreneurial orientation and SME business performance. The model fit is the best when only coordination is added to the model, it reaches 26.9%. Coordination therefore appears to be the most important capability. Coordination can be described as the actual reconfiguration of the resources as a result of the new knowledge (Pavlou and El Sawy, 2011). It is assigning resources to tasks, appointing the right person to the right task, identifying new synergies and orchestrating all the activities (Pavlou and El Sawy, 2011), in small firms this can be either the entrepreneur doing this without any processes, in larger corporations this can be managed via processes. Having these capabilities does not reinforce the relationship between entrepreneurship and SME business performance, it makes it less important.

MANAGERIAL IMPLICATIONS

What does this mean for managers and the companies in the Dutch HVAC industry in particular? Both entrepreneurial orientation and dynamic capabilities are important for the business success. It is particular important to be innovative in the way the companies do their business and the products and services they offer. Entrepreneurial orientation has more significant effect on the SME performance than dynamic capabilities and the negative moderating effect of dynamic capabilities is not that strong that it could replace entrepreneurial orientation all together. Therefore, building dynamic capabilities can reduce the dependence on individual entrepreneurs within the SME but it can never do without. Integrating capabilities are important for SMEs, these integrating capabilities help the business to make use of the idea and opportunities, but it does not reinforce the effect of entrepreneurial orientation itself.

Looking at the title of this thesis; "Entrepreneurship or Dynamic Capabilities, do we need them both?" the answer is yes we need them both, but not in the total sense of the definition. Only part of the constructs has a positive influence. Building the one competence can lower the dependence of the other.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This research adds knowledge to the fields of entrepreneurial orientation and dynamic capabilities. However, it is not without limitation and it opens up new questions for future research.

First of all, the sample size and response percentage needs to be considered. With a total number of 308 responses and 205 complete and used for the analysis, the confidence level therefore is between 85% and 90%. We therefore have to be careful to generalize these findings over the total population. Second, only the Dutch HVAC industry is used, we therefore do not know if these findings apply to other Industries and other countries. Third, the respondents of the survey were in general the owner of the business, they might answer the questionnaire more positive than managers or other employees would, when it would have been possible triangulation would improve the accuracy of the results.

For future research, it would be interesting to check other industries and in that case market turbulence will have an influence and the influence can be tested. In this study, the market turbulence is the same for everyone the only difference is perception.

Dynamic capabilities have a negative moderating effect on the relation between entrepreneurial orientation and SME business performance, and entrepreneurial orientation is more important than dynamic capabilities with SMEs, it can be hypothesized that with size dynamic capabilities increase in importance and entrepreneurial orientation decrease in importance. That effect of size is interesting to research. The operationalisation of both dynamic capabilities and entrepreneurial orientation is as well a point of further research. For dynamic capabilities, the operationalisation of Pavlou ad El Sawy (2011) is used. They draw from the processes in R&D and their opinion is that these can be used in other industries and functions as well. A deeper look in the dynamic capabilities in SMEs per industry can increase the insight in these industries. For entrepreneurial orientation, the most widely used strategy making processes are used. There are other researchers that found different processes, Miller & Friesen (1978) found eleven processes, and there could be other processes that make a difference.

Finally, only about 27% of the variation is explained with dynamic capabilities and entrepreneurial orientation, what is making up the other 73%, could these be operational capabilities, or are there others?

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APPENDIX

Appendix I: Definitions of dynamic capabilities

Study	Definition
(Teece & Pisano, 1994)	The subset of the competences and capabilities that allow the firm to create new products and processes and respond to changing market circumstances
(Teece et al., 1997)	The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.
(Eisenhardt & Martin, 2000)	The firm's processes that use resources – specifically the processes to integrate, reconfigure, gain, and release resources – to match and even create market change; dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die.
(Teece, 2000)	The ability to sense and then seize opportunities quickly and proficiently
(Zollo & Winter, 2002b)	A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness.
(Winter, 2003)	Those (capabilities) that operate to extend, modify, or create ordinary capabilities.
(Zahra et al., 2006)	The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision maker(s).
(Helfat et al., 2007)	The capacity of an organization to purposefully create, extend, or modify its resource base.
(Teece, 2007)	Dynamic capabilities can be disaggregated into the capacity (a) to sense and shape opportunities and threats, (b) to seize opportunities, and (c) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets
(Barreto, 2010)	A Dynamic capability is the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market oriented decisions, and to change its resource base
(Knight & Cavusgil, 2004)	Reflecting the ability of managers to renew the firm's competences so as to achieve congruence with the changing business environment.
(Griffith, Myers, & Harvey, 2006)	A global dynamic capability is the creation of difficult-to-imitate combinations of resources, including effective coordination of inter-organizational relationships, on a global basis that can provide a firm a competitive advantage.
(Rindova & Taylor, 2002)	Dynamic capabilities evolve at two levels: a micro-evolution through upgrading the management capabilities of the firm and a macro-evolution associated with reconfiguring market competencies
(Zahra & George, 2002)	Dynamic capabilities are essentially change-oriented capabilities that help firms redeploy and reconfigure their resource base to meet evolving customer demands and competitor strategies.

Appendix II: Definitions of entrepreneurial orientation

Authors	Definition of EO
(Mintzberg, 1973)	"In the entrepreneurial mode, strategy-making is dominated by the active search for new opportunities" as well as "dramatic leaps forward in the face of uncertainty" (p45)
(Khandwalla, 1976)	"The entrepreneurial [Management] style is characterized by bold, risky aggressive decision-making" (p.25, [] added).
(Miller & Friesen, 1982)	"The entrepreneurial model applies to firms that innovaye boldly and regularly while taking considerable risks in their product-market strategies" (p. 5.)
(Miller, 1983)	"An entrepreneurial firm is one that engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch" (p. 771)
(Morris & Paul, 1987)	"An entrepreneurial firm is one with decision-making norms that emphasize proactive, innovative strategies that contain an element of risk" (p. 249)
(Covin & Slevin, 1998)	"Entrepreneurial firms are those in which the top managers have entrepreneurial styles, as evidenced by the firms' strategic decisions and operating management philosophies. Non-entrepreneurial or conservative firms are those in which the top management style is decidedly risk-averse, non-innovative, and passive or reactive" (p. 218)
(Russell Merz & Sauber, 1995)	"Entrepreneurial orientation is defined as the firms' degree of proactiveness (aggressiveness) in its chosen product-market unit (PMU) and its willingness to innovate and create new offerings" (p. 554)
(Lumpkin & Dess, 1996)	"EO refers to the processes, practices, and decision-making activities that lead to new entry" as characterized by ne, or more of the following dimensions: "a propensity to act autonomously, a willingness to innovate and take-risks, and a tendency to be aggressive towards competitors and proactive relative to marketplace opportunities" (pp. 136-137)
(Zahra & Neubaum, 1998)	EO is "the sum total of a firm's radical innovation, proactive strategic action, and risk taking activities that are manifested in support of projects with uncertain outcomes"
(Polonsky, Giraud Voss, Voss, & Moorman, 2005)	". we define EO as a firm-level disposition to engage in behaviours [reflecting risk-taking, innovativeness, proactiveness, autonomy and competitive aggressiveness] that lead to change in the organization or marketplace" (p. 1134 [] added)
(Avlonitis & Salavou, 2007)	"EO constitutes an organizational phenomenon that reflects a managerial capability on which firms embark on proactive and aggressive initiatives to alter the competitive scene to their advantage" (p. 567)
(Cools & Van den Broeck, 2007)	"Entrepreneurial orientation (EO) refers to the top management's strategy in relation to innovativeness, proactiveness, and risk-taking" (p. 27)
(Pearce, John, Fritz, & Davis, 2010)	:an EO is conceptualized as a set of distinct but related behaviours that have the qualities of innovativeness, proactiveness, competitive aggressiveness, risk taking, and autonomy" (p. 219)

Appendix III: Barriers for SMEs and sources in literature

Barrier	Source
Raising capital	(Aldrich & Auster, 1986; Keskin, 2006; Larsen & Lewis, 2007)
Unfavorable tax laws	(Aldrich & Auster, 1986)
Burden of regulation	(Aldrich & Auster, 1986)
Qualified employees	(Aldrich & Auster, 1986; Birley et al., 1995; Foley & Green, 1995; Keogh & Evans, 1998; Larsen & Lewis, 2007)
Owners personality	(Beaver, 2003)
Power balance with suppliers and customers	(Keskin, 2006)

Appendix IV: Differences between new ventures and established companies (Zahra et.al. , 2006)

Dimension	New ventures	Established companies
Configuration and attributes of DC (number, scope, complexity, stability)	Few	Many
	Focused	Broad
	Simple then complex	Complex than simple
	Rapidly changing	Resistant to change
Triggers/speed for the development and use of DC	Increasing integration skills, recent execution failures, opportunities in previously unexplored areas, and major changes in demands from customers	Presence of integration skills, recent repeated execution failures, and major changes in the competitive landscape whereby competitors have leapfrogged the firm's technology features.
	Development, use likely follows vary rapidly upon event; changes sometimes dramatic	Development, use occurs after a significant gap following changed circumstances; changes rarely dramatic.
Primary methods discovering or developing DC	Trial-and-error	Learning from experience
	Improvisation	Planned change, experimentation
	Imitation	Imitation
	Learning is based on action more than planning	Deliberate, with an emergent quality
Capability upgrading	A key goal is filling major gaps in the firm's existing capability portfolio to explore opportunities for organic growth.	The focus is on building dynamic capabilities that both leverage what the firm is already doing while stretching its competence base

Appendix V: Measurement items entrepreneurial orientation (Hughes and Morgan, 2007)

Entrepreneurial Orientation		
Risk Taking		
	The term "risk taker 'is considered a positive attribute for people in our business	Bij ons bedrijf wordt het durfen nemen van risico's gezien als een positieve eigenschap
	People in our business are encouraged to take calculated risks with new ideas	Medewerkers in ons bedrijf worden aangemoedigd om gecalculeerde risico's te nemen bij het introduceren van nieuwe ideeen.
	Our business emphasizes both exploration and experimentation for opportunities	In ons bedrijf wordt de nadruk gelegd op het zoeken naar en uitbuiten van nieuwe kansen.
Innovativeness	**We actively introduce improvements and innovations in our business**	Verbeteringen en innovaties worden in ons bedrijf actief geintroduceerd.
	Our business is creative in its methods of operation	Ons bedrijf is creatief in de manier van werken
	Our business seeks out new ways to do things	Ons bedrijf selecteerd nieuwe manieren om ons werk te doen.
Proactiveness	**We always try to take the initiative in every situation (e.g. against competitors, in projects and when working with others)**	We proberen altijd het initiatief te nemen in elke situatie.
	We excel at identifying opportunities	We blinken uit in het vinden van nieuwe kansen.
	We initiate actions to which other organizations respond	Andere bedrijven reageren op acties die wij initieren.
Competitive aggressiveness	**Our business is intensely competitive**	Ons bedrijf is in hoge mate competatief
	In general, our business takes a bolder aggressive approach when competing	In competatieve omstandigheden is ons bedrijf moediger en acteert het aggresiever dan onder andere omstandigheden.
	We try to undo and out-manoeuver the competition as best as we can	We proberen onze concurrenten altijd een stap voor te zijn waar mogelijk
Autonomy	**Employees are permitted to act and think without interference**	Medewerkers in ons bedrijf mogen volledig zelfstandig acteren en denken zonder tussenkomst van iemand.
	Employees perform jobs that allow them to make and instigate changes in the way they perform their work tasks	Medewerkers hebben functies die het toelaat om zelfstandig wijzigingen in de manier waarop ze werken te initieren en te wijzigen.
	Employees are given freedom and independence to decide on their own how to go about doing their work	Medewerkers hebben de vrijheid en onafhankelijkheid ode manier waarop ze hun werk doen zelf in te richten.
	Employees are given freedom to communicate without interference	Medewerkers mogen met iedereen communiceren zonder dat tevoren te overleggen.
	Employees are given authority and responsibility to act alone if they think it to be in the best interest of the business	Medewerkers hebben de autoriteit en verantwoordelijkheid gekregen om zlefstandig beslissingen te nemen in het belang van het bedrijf.
	Employees have access to all vital information	Medewerkers hebben toegang tot alle belangrijke informative.

Appendix VI: Measurement items dynamic capabilities (Pavlou and El Sawy, 2011)

Dynamic Capabilities		
Sensing Capability	**We frequently scan the environment to identify new business opportunities.**	Ons bedrijf speurt actief de omgeving af met als doel het vinden van nieuwe kansen voor het bedrijf.
	We periodically review the likely effect of changes in our business environment on customers.	We vragen ons stelselmatig af welke impact veranderingen in onze markt zullen hebben op onze klanten.
	We often review our product/service development efforts to ensure that they are in line with what the customers want.	We analyseren regelmatig onze plannen voor nieuwe producten en services om er voor te zorgen dat deze blijvend aansluiten op de behoefte van onze klanten.
	We devote a lot of time implementing ideas for new product and services and improving existing products and services.	We spenderen veel tijd aan het implementeren van nieuwe ideeen op het gebied van producten en services en het verbeteren van bestaande producten en services.
Learning capability		
	We have effective routines to identify, value and import new information and technology.	We hebben effectieve routines/processen die ons helpen bij het inschatten van de waarde van nieuwe informative, en het ons eigen maken van deze nieuwe informative of technologie.
	We have adequate routines to assimilate new information and knowledge.	We hebben effectieve routines en processen die er voor zorgen dat we nieuwe kennis en informatie toe kunnen passen op onze situatie.
	We are effective in transforming existing knowledge into new knowledge.	We zijn erg effectief in het toepassen van bestaande kennis in andere gebieden als nieuwe kennis in ons eigen gebied.
	We are effective in utilizing knowledge into new products or services.	We zijn goed in staat nieuwe kennis om te zetten in nieuwe producten of services.
	We are effective in developing new knowledge that has the potential to influence product or service development.	We zijn goed in staat nieuwe kennis te genereren die de potentie heeft de ontwikkeling van nieuwe services en producten te beinvloeden.
Integrating capability	**We are forthcoming in contributing our individual input to the group.**	We delen actief en zo snel mogelijk onze eigen input en ideeen met een grotere groep
	We have a global understanding of each other's tasks and responsibilities.	We weten op hoofdlijnen van een ieder in ons bedrijf wat de ander zijn taken en verantwoordelijkheden zijn.
	We are fully aware who in the group has specialized skills and knowledge relevant to our work.	We weten goed wie er in de groep gespecialiseerde kennis en/of vaardigheden heeft die van belang zijn in ons vakgebied.
	We carefully interrelate our actions to each other to meet changing conditions.	We overleggen op regelmatige basis om onze activiteiten met elkaar af te stemmen en daarmee in te spelen op veranderende omstandigheden.
	Group members manage to successfully interconnect their activities.	We zijn goed in staat om onze activiteiten of activiteiten in groepen goed op elkaar af te stemmen.
Coordinating capability	**We ensure that the output of our work is synchronized with the work of others.**	We zorgen er voor dat het werk dat we opleveren is afgestemd op het werk van anderen in de organizatie.
	We assure an appropriate allocation of resources within our group.	We zorgen er voor dat de beschikbare capaciteit goed is verdeeld binnen ons bedrijf of groep.
	Group members are assigned to tasks commensurate with their task-relevant knowledge and skills.	Mensen binnen ons bedrijf krijgen taken toegewezen die aansluiten bij hun kennis en vaardigheden.
	We ensure that there is compatibility between group members expertise and work processes.	We zorgen er voor dat de kennis en kunde op een afdeling is afgestemd op de werkprocessen.
	Overall, our group is well coordinated.	In het algemeen kan men stellen dat activiteiten binnen ons bedrijf goed op elkaar zijn afgestemd.
Transformation capability		
	We can successfully reconfigure our resources to come up with productive assets.	Ons bedrijf is in staat om onze middelen (mensen, geld, kennis, machines) op een dusdanig andere manier in te zetten zodat deze nieuwe inkomsten op een andere manier genereren.
	We often engage in resource recombination's to better match our product market areas and our assets.	Ons bedrijf zet zijn middelen (mensen, geld, kennis, machines) regelmatig op een andere manier in om beter aan de vraag uit de markt te kunnen voldoen.

Appendix VII: SME business performance measurement items (Venkatraman & Ramanujam, 1986)

SME Business performance		
Product performance	**Relative to competing products, those of our business have been more successful in terms of sales**	Onze producten of diensten zijn ten opzichte van onze concurrenten succesvoller gebleken beoordelend aan het verkoopvolume.
	Relative to competing products , those of our business have been more successful in terms of achieving a establishing market share	Onze producten en services zijn succesvoller gebleken in het behalen en vasthouden van marktaandeel dan die van onze concurrenten.
Customer performance	**We have been able to attract totally new customers this year**	We zijn in staat geweest om de afgelopen jaren complete nieuwe klanten aan ons te binden
	We have been able to expand our existing customer base this year	We zijn de afgelopen jaren in staat geweest het total aantal aan klanten uit te breiden
	We have succeeded in sustaining our customer base and achieving repeat orders	We zijn de afgelopen jaren in staat geweest om onze bestaande klanten te behouden, en deze hebben daarnaast herhaaldelijk bij ons besteld

Appendix VIII: Market turbulence measurement items

Environmental Turbulence (1-7 Likert scale)		
Market turbulence	**The level of market turbulence in the external environment is extremely high**	Onze markt wordt gekenmerkt door grote tubulentie (veel wijzigingen in vraag, aanbod, regelgeving, producten)
	It is almost impossible to predict accurately the rapidly changing tastes and demands of customers.	Het is bijna onmogelijk om de wijzigende behoeftes en vraag van onze klanten te voorspellen.
	Activities of major competitors are unpredictable and competition is very intense	Activiteiten van onze belangrijkste concurrenten zijn moeilijk te voorspellen en de er heerst een grote rivaliteit
	The speed of technological changes in the principal industry in which our firm operate is very fast	De snelheid waarmee de technologie in onze branche veranderd is erg hoog
	The technological changes in the industry in which we operate is unpredictable	De wijzigingen in technologie in onze branche zijn er oonvoorspelbaar.
	The impact of new technology on business operations is rather high	De impact van technologische veranderingen op ons bedrijf is erg groot.

Appendix IX: Cronbachs Alpha of measurement items

		α	Mean	SD
Entrepreneurial Orientation (EO)		0.885		
Risk Taking (EOrisk)		0.668		
EORQ1	The term "risk taker 'is considered a positive attribute for people in our business		3.51	0.901
EORQ2	People in our business are encouraged to take calculated risks with new ideas		3.09	0.981
EORQ3	Our business emphasizes both exploration and experimentation for opportunities		3.72	0.916
Innovativeness (EOinnovativeness)		0.78		
EOIQ1	We actively introduce improvements and innovations in our business		3.76	0.857
EOIQ2	Our business is creative in its methods of operation		3.99	0.862
EOIQ3	Our business seeks out new ways to do things		4.03	0.804
Proactiveness (EOproactiveness)		0.767		
EOPQ1	We always try to take the initiative in every situation (e.g. against competitors, in projects and when working with others)		3.82	0.816
EOPQ2	We excel at identifying opportunities		3.26	0.794
EOPQ3	We initiate actions to which other organizations respond		2.9	0.892
Competitive aggressiveness (EOcagressiveness)		0.732		
EOCQ1	Our business is intensely competitive		3.19	0.926
EOCQ2	In general, our business takes a bolder aggressive approach when competing		2.19	0.987
EOCQ3	We try to undo and out-manoeuver the competition as best as we can		3.06	1069
Autonomy (EOautonomy)		0.899		
EOAQ1	Employees are permitted to act and think without interference		3.39	1.055
EOAQ2	Employees perform jobs that allow them to make and instigate changes in the way they perform their work tasks		3.39	1.077
EOAQ3	Employees are given freedom and independence to decide on their own how to go about doing their work		3.62	1.002
EOAQ4	Employees are given freedom to communicate without interference		3.37	1.071
EOAQ5	Employees are given authority and responsibility to act alone if they think it to be in the best interest of the business		3.38	0.992
EOAQ6	Employees have access to all vital information		2.88	1.203
Dynamic capabilities		0.908		
Sensing Capability (DCsensing)		0.815		
DCSQ1	We frequently scan the environment to identify new business opportunities.		3.46	1.005
DCSQ2	We periodically review the likely effect of changes in our business environment on customers.		3.37	0.952
DCSQ3	We often review our product/service development efforts to ensure that they are in line with what the customers want.		3.45	1.019
DCSQ4	We devote a lot of time implementing ideas for new product and services and improving existing products and services.		3.17	1.093
Learning capability (DCLearning)		0.87		
DCZQ1	We have effective routines to identify, value and import new information and technology.		3.13	0.968
DCZQ2	We have adequate routines to assimilate new information and knowledge.		3.23	1.025
DCZQ3	We are effective in transforming existing knowledge into new knowledge.		3.48	0.944
DCZQ4	We are effective in utilizing knowledge into new products or services.		3.64	0.836
DCZQ5	We are effective in developing new knowledge that has the potential to influence product or service development.		3.39	0.91
Integrating capability (DCIntegrating)		0.9		
DCZQ6	We are forthcoming in contributing our individual input to the group.		3.31	0.952
DCZQ7	We have a global understanding of each other's tasks and responsibilities.		3.9	1.018
DCZQ8	We are fully aware who in the group has specialized skills and knowledge relevant to our work.		4.05	0.966
DCZQ9	We carefully interrelate our actions to each other to meet changing conditions.		3.74	1.003
DCZQ10	Group members manage to successfully interconnect their activities.		3.7	1.007
Coordinating Capability (DCCoordinating)		0.931		
DCZQ11	We ensure that the output of our work is synchronized with the work of others.		3.9	0.961
DCZQ12	We assure an appropriate allocation of resources within our group.		3.82	0.931
DCZQ13	Group members are assigned to tasks commensurate with their task-relevant knowledge and skills.		3.85	1.011
DCZQ14	We ensure that there is compatibility between group members expertise and work processes.		3.8	0.982
DCZQ15	Overall, our group is well coordinated.		3.96	0.966
Transformation capability (DCtransforming)		0.854		
DCTQ1	We can successfully reconfigure our resources to come up with productive assets.		3.39	0.982
DCTQ2	We often engage in resource recombination's to better match our product market areas and our assets.		3.54	0.889
Environmental Turbulence (MT)		0.787		
MTQ1	The level of market turbulence in the external environment is extremely high		3.7	1.03
MTQ2	It is almost impossible to predict accurately the rapidly changing tastes and demands of customers.		3.13	1.067
MTQ3	Activities of major competitors are unpredictable and competition is very intense		3.07	1.121
MTQ4	The speed of technological changes in the principal industry in which our firm operate is very fast		3.87	1.025
MTQ5	The technological changes in the industry in which we operate is unpredictable		2.96	1.021
MTQ6	The impact of new technology on business operations is rather high		3.26	1.059
Business performance (SMEBP)		0.792		
PQ1	Relative to competing products, those of our business have been more successful in terms of sales		3.29	0.739
PQ2	Relative to competing products , those of our business have been more successful in terms of achieving a establishing market share		4.33	0.838
CQ1	We have been able to attract totally new customers this year		3.42	0.739
CQ2	We have been able to expand our existing customer base this year		4.27	0.884
CQ3	We have succeeded in sustaining our customer base and achieving repeat orders		4.26	0.824

Appendix X: Factor analysis dynamic capabilities

	Component				Construct	Question
	1	2	3	4		
Item 1				.886	Sensing	We frequently scan the environment to identify new business opportunities.
Item 2				.882		We periodically review the likely effect of changes in our business environment on customers.
Item 3		.385		.462		We often review our product/service development efforts to ensure that they are in line with what the customers want.
Item 4		.516		.336		We devote a lot of time implementing ideas for new product and services and improving existing products and services.
Item 5		.857			Learning	We have effective routines to identify, value and import new information and technology.
Item 6		.924				We have adequate routines to assimilate new information and knowledge.
Item 7		.489				We are effective in transforming existing knowledge into new knowledge.
Item 8		.457	.426			We are effective in utilizing knowledge into new products or services.
Item 9		.556	.319			We are effective in developing new knowledge that has the potential to influence product or service development.
Item 10		.305			Integrating	We are forthcoming in contributing our individual input to the group.
Item 11	.910					We have a global understanding of each other's tasks and responsibilities.
Item 12	.881					We are fully aware who in the group has specialized skills and knowledge relevant to our work.
Item 13	.802					We carefully interrelate our actions to each other to meet changing conditions.
Item 14	.787					Group members manage to successfully interconnect their activities.
Item 15	.782				Coordinating	We ensure that the output of our work is synchronized with the work of others.
Item 16	.896					We assure an appropriate allocation of resources within our group.
Item 17	.911					Group members are assigned to tasks commensurate with their task-relevant knowledge and skills.
Item 18	.901					We ensure that there is compatibility between group members expertise and work processes.
Item 19	.843					Overall, our group is well coordinated.
Item 20			.906		Transforming	We can successfully reconfigure our resources to come up with productive assets.
Item 21			.916			We often engage in resource recombination's to better match our product market areas and our assets.

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization
Rotation converged in 6 iterations.
Values below 0.3 are not shown

Appendix XI: Factor analysis entrepreneurial orientation

	Component				Construct	Question
	1	2	3	4		
Item 1				.574	Risk	The term "risk taker 'is considered a positive attribute for people in our business
Item 2				.775		People in our business are encouraged to take calculated risks with new ideas
Item 3	.610			.377		Our business emphasizes both exploration and experimentation for opportunities
Item 4	.643			.318	Innovativeness	We actively introduce improvements and innovations in our business
Item 5	.726					Our business is creative in its methods of operation
Item 6	.665					Our business seeks out new ways to do things
Item 7	.779				Proactiveness	We always try to take the initiative in every situation (e.g. against competitors, in projects and when working with others)
Item 8	.788					We excel at identifying opportunities
Item 9	.580		.367			We initiate actions to which other organizations respond
Item 10			.661		Competitve agressiveness	Our business is intensely competitive
Item 11			.843			In general, our business takes a bolder aggressive approach when competing
Item 12			.714			We try to undo and out-manoeuver the competition as best as we can
Item 13		-.808			Autonomy	Employees are permitted to act and think without interference
Item 14		-.853				Employees perform jobs that allow them to make and instigate changes in the way they perform their work tasks
Item 15		-.823				Employees are given freedom and independence to decide on their own how to go about doing their work
Item 16		-.861				Employees are given freedom to communicate without interference
Item 17		-.803				Employees are given authority and responsibility to act alone if they think it to be in the best interest of the business
Item 18		-.643				Employees have access to all vital information

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalizatior
Rotation converged in 9 iterations.
Values below 0.3 are not shown