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DBA thesis

Emergence of dynamic capabilities in low velocity industries – A case study of European shipbuilding industry

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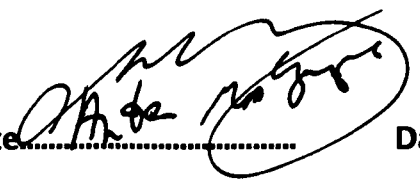
4. **Signature of Candidate**.....  **Date**.....October 29th 2013

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Abstract

Purpose

During last two decades the uncertainty in and complexity of the external environment has become a common challenge for most companies worldwide. To gain a more sustainable competitive advantage in their rapidly changing competitive milieux companies should be able successfully to integrate innovative elements and develop their dynamic capabilities. The value of dynamic capabilities lies in the resource configurations that they create or enhance in rapidly and radically changing environments, which in turn enable the firm to pursue opportunities in new, unpredictable markets (Ambrosini & Bowman, 2009).

Firms which operate in high-velocity industries continuously develop their dynamic capabilities as the only means to survive. Companies in low-velocity industries are usually unprepared for radical and rapid changes and thus they are less competitive than companies which develop their dynamic capabilities in less stable environments.

This study examines how dynamic capabilities have evolved in an industry which is moving from a relatively low velocity into moderately high velocity.

Design/methodology/approach

A deductive, interpretive approach is chosen for the current study, mainly because it offers a better opportunity to explain, describe, illustrate, and explore specific aspects of the emergence of dynamic capabilities in relatively low velocity environments.

The study has studied three ship building companies in Europe. The study has two main phases of data collection. The first data collection phase begins with three in-depth interviews with chief executives from the companies selected for the case study. The chief executives of these companies are chosen for their known, recent experience with dynamic capabilities and because they represent the shipbuilding

industry in Europe. The second data collection phase consists of nineteen semi-structured interviews. The collected research data is analyzed by case studies methods.

Findings

This work has found that dynamic capabilities developed in stable environments lead to superior performance under conditions of environmental volatility; entrepreneurial behaviour on every managerial level is necessary in order to develop dynamic capacity; low-cost experimentations are one of the most effective methods to trigger dynamic capabilities; and learning through internationalization is an effective tool to develop dynamic capabilities. It has also found that new business development units and spin-offs might trigger development of dynamic capabilities but cooperation between small and medium-sized firms and large enterprises does not increase the development of dynamic capabilities and might be even counterproductive.

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Contents

Glossary

Agile competition – a competitive environment of continually and unpredictably changing market opportunities (Goldman et al., 1995)

Dynamic environment - dynamic environment is characterized by newly formed or re-formed industries that has been created by technological innovations, emergence of new consumer needs/segments or other socio-economic changes that elevate a new product or a service to the level of potentially viable business opportunity (Hitt, 2004)

Dynamic capabilities - organizational routines of a strategic nature through which firms obtain new configurations of resources when markets emerge, collide, divide, evolve and die (Teece et al., 1997)

Environmental velocity - a uniform change in the rate and direction of demand, competition, technology, and regulation (Bourgeois & Eisenhrdt, 1988)

Evolutionary fitness – refers to how well a dynamic capability enables an organization to make a living by creating, extending, or modifying its resource base (Helfat et al., 2007)

Innovation - the ability of the entrepreneur to look at markets, technologies and business models and to interpret them "differently" (Augier & Teece, 2007a)

Internationalization - the process by which firms increase their involvement in operations across borders (Welch, 1988)

Operational capability - is any type of capability that an organization uses in an effort to earn a living in the present (Helfat et al., 2007)

Organization learning - the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it into products, services and systems (Zollo & Winter, 2002)

Resource-based view – the resource-based view of the firm views the ability of a firm to extend the scope of its products or services enabling it to enter new markets as being dependent on its possession of superior resources (Miller, 2004)

Resources of the firm - the productive services available to a firm from its own resources, particularly the productive services available from management with experience within the firm (Penrose, 1959)

Refit – making ready for use again by repairing, re-equipping (Nousiainen, 2011). An usual budget of such projects is from 6 to 12 mln USD

Refurbishment – reinvention of passenger areas (on board of a cruise ship), services and their facilities to support revenue increase (Nousiainen, 2011). An usual budget of such projects is from 0 to 6 mln USD

Revitalisation – changes and renewal to strengthen ability to stay alive or operating in an effective way (Nousiainen, 2011). An usual budget for such projects is over 12 mln USD

Stable environment - as the industry traverses the dynamic phase, the intense competition during this stage leads to a shake-out phase. As a result, the industry enters a stable phase characterized by a small number of large companies (Hitt et al, 2004)

Sustainable competitive advantage – organization's ability to consistently maintain and earn returns on investments above the average for its industry (Porter, 1985)

Technical fitness – denotes how effectively a capability performs its intended function (its quality) when normalized (divided by) its cost (Helfat et al., 2007)

Virtual organization – an opportunistic alliance of core competencies distributed among a number of distinct operating entities within a single large company or among a group of independent companies (Goldman et al., 1995)

Chapter 1. Introduction

"*Fixation is the way to death; fluidity is the way of life*" (Miyamoto Musashi).

During the last two decades the uncertainty and complexity in the external environment has become a common challenge for most companies worldwide. In order to combat the situation, companies began to look inside their organization for potentially utilizable alternative resources. How firms generate and sustain their competitive advantage has become one of the foremost concerns in the field of strategic management (Ambrosini & Bowman, 2009).

The resource-based view of the firm (RBV) attempts to solve this dilemma. It views the ability of a firm to extend the scope of its products or services thereby enabling it to enter new markets as being dependent on its possession of superior resources (Miller, 2004). According to RBV, a firm's possession of valuable, rare, inimitable, and/or difficult-to-imitate resources such as competencies or know-how is the fundamental determinant in a firm's ability to pursue economies of scope (Barney, 1986; Penrose, 1959).

However, the emphasis in RBV is on the deployment and protection of unique knowledge rather than on the need for resources or competencies to actually change over time (McEvily et al., 2004). A weakness of the resource-based view is that it does not specifically address how future valuable resources could be created in changing environments, and this has become a main focus of the concept of the dynamic capability perspective. According to Wu (2010) the dynamic capabilities view is more useful than the resource-based view in turbulent economic times, but it is limited by much of the discourse being theoretical rather than based on empirical observation.

Dynamic capabilities theory refers to the firm's ability to integrate, build upon and reconfigure internal and external resources and functional competences in order to deal with environments which are constantly evolving (Teece et al., 1997). Eisenhardt and Martin (2000) refer to dynamic capabilities as consisting of specific strategic and organizational processes that manipulate resources into new competencies while renewing old ones. However, these include not only internal processes, but also collaboration with other organizations as a mean of extending each firm's competencies (McEvily et al., 2004). The

value of dynamic capabilities lies in the resource configurations that they create or enhance in rapidly and radically changing environments, which in turn enable the firm to pursue opportunities in new, unpredictable markets.

For those firms which operate in high-velocity industries with short product cycles and rapidly shifting competitive landscapes, the ability to engage in rapid and relentless, continuous change is a crucial capability for survival (D'Aveni, 1994). For these firms, change is not a rare, episodic phenomenon, but rather, it is endemic to the way these organizations compete (Brown & Eisenhardt, 1997). These firms continuously develop their dynamic capabilities as the only means to survive.

By contrast, firms operating in more stable industries with long product cycles do not have a need to change their resource-base continuously. These firms are more focused on efficiency and exploitation of their resources. However such firms become vulnerable as exogenous factors start to change. Companies in low-velocity industries are usually unprepared for radical and rapid changes and thus, they are less competitive than companies which develop their dynamic capabilities in stable environments (Zahra et al., 2006).

Although the concept of dynamic capabilities is not new, it does not provide a straightforward answer either as to how companies which usually operate in low-velocity environments facing environmental change can develop their dynamic capabilities or whether the development of dynamic capabilities in low velocity environments leads to superior performance. Nor does it differentiate between those dynamic capabilities which are more relevant for large enterprises and those which are more appropriate for small and medium-sized companies. The researcher considers the processes of development of dynamic capabilities of small and medium-sized companies operating in low velocity environments as a significant gap which the current study seeks to address.

1.1. Why small and medium-sized shipbuilding companies?

There is a flaw in existing dynamic capability models, namely that they are especially relevant to large, multinational enterprises, despite the fact that the European business scene is dominated by the small and medium-sized enterprise (SME) sector, i.e., by firms with 250 employees or fewer. The sector represents 66 percent of all jobs and 65 percent of the total business turnover in the European Union (Døving & Gooderham, 2008). The shipbuilding industry in Europe is even more dominated by small and medium-sized companies. For example in Finland, most shipbuilding companies have fewer than 100 employees.

The current study considers whether the processes of the emergence of dynamic capabilities in small and medium-sized companies is different compared to large enterprises.

Simon, Schoeman & Sohal (2010) have identified six generic strategic capabilities that related to organizational success. These are quality of service, including client service and the need to listen to and understand the customer; good leadership and vision, which encourages innovation and creativity; selection and retention of good staff with good technical skills; credibility, integrity and honesty; excellent differentiated products or services; and adaptability and flexibility. The current study will focus on the last factor: companies' abilities to adapt to rapid and radical changes.

Assuming that a related dynamic capabilities perspective of a given firm is a fruitful approach for studying adaptability and competitiveness, this research seeks to identify differences between small and medium-sized companies and large companies in their capacity to adapt to changing environments by primarily employing a dynamic capability view of the firm.

1.2. Rationale of the shipbuilding industry

The current research is based on the European shipbuilding industry. Because of the complexity of shipbuilding, it is impossible to do all work in-house and the majority of work is outsourced to small and medium-sized companies. The primary service offered by small

and medium-sized shipbuilding companies is the outfitting of specific parts in different technical areas on new-build vessels.

European shipbuilding companies have faced a major transformation in their environment in the last 10 years. Once stable, they now face increasing competition, rapid and radical changes in many market segments, and a transformation that continues at an even faster pace today. It is for this reason that the European shipbuilding companies are a very good example of how small and medium-sized enterprises usually operating in stable environment, cope with uncertainty and radical changes.

Having worked in the shipbuilding industry for 14 years, the researcher has gained the deep understanding of the industry and has become an expert in different related fields. This has allowed access into many leading shipbuilding companies in Europe and worldwide.

1.3. Research questions

To study how small and medium-sized European shipbuilding companies can develop dynamic capabilities in stable environments in order to obtain sustainable competitive advantages and to survive in rapidly and radically changing environments, the following questions need to be addressed:

1. *How do dynamic capabilities emerge in organizations that experience a transition from a low velocity to a moderately high velocity environment?*

Answers to this question will seek to contribute to the debate towards establishing dynamic capabilities as a theoretically well-founded tenet and one that is managerially relevant. Existing models (Ambrosini & Bowman, 2009) consider a dynamic capabilities perspective as one particularly relevant to firms which operate in high-velocity industries continually facing rapid and radical changes. The current study assumes that development of dynamic capabilities in a moderately low-velocity industry should lead to sustainable competitive advantages.

Answering this question would facilitate the development of dynamic capabilities in stable environments which might drive a whole industry from a stable environment to a changing environment. In addition, development of dynamic capabilities in such circumstances might lead to the creation of new valuable, rare, inimitable, and irreplaceable resource bases. Such a newly created resource base will ultimately lead to the creation of competitive advantage and even to temporary monopoly. Reconfiguring valuable, rare, inimitable, and nonsubstitutable resource bases guarantee sustainable competitive advantages, which is one of companies' primary objectives.

If it were understood how, in practice, dynamic capabilities are created in stable environments, it would allow for the establishment of guidelines for managers about their targeted development. It would also allow better understanding about how other factors can create new resources and hence provide some evidence to help managers find the right solutions for their firms when faced with the need for resource renewal. Answering this question would also facilitate our understanding of how contingent on the perceived and actual environment the effective deployment of certain types of dynamic capabilities is and, similarly, it would allow the design of relevant managerial prescriptions.

2. *What would be the impact in terms of the size of an organization on the process of emergence of dynamic capabilities?*

It is also assumed that large and small/medium-sized companies should develop different dynamic capabilities because of differences in human resources, the availability of financial and other resources; corporate flexibility, and differentiation in organizational processes. The existing models are designed mainly for large multinational enterprises and might be not applicable for small and medium-sized companies. The majority of empirical and conceptual studies are mainly focused on large enterprises and only a few of them have looked at SMEs, but in a very limited context. Those few studies which were conducted with a focus on SMEs were based on high velocity industries such as IT, and pharmaceutical. Hardly any empirical study examining SMEs operating in an industry with a long product lifecycle can be found.

Answering this research question will provide a perception on how and which dynamic capabilities should be developed in small and medium-sized companies.

3. *What specific entrepreneurial characteristics would have an impact on the evolution of dynamic capabilities?*

A number of conceptual and empirical studies claim that top management plays a crucially important role in the development of dynamic capabilities. But only a few of them mention the importance of the entrepreneurship of the management. This study assumes that although top management plays a vital role in the adaptability of firms, it is not enough to sustain a competitive advantage. It is not only top management which should be entrepreneurial, but rather entrepreneurial behaviour should exist on every managerial level. It is also assumed that entrepreneurial behaviour plays a major role in the development of dynamic capabilities.

1.4. Expected contribution to theory

There is a growing volume of literature that correlates a firm's survival in a fast changing environment with its ability and the speed to adapt to these changes.

The dynamic capability model has already discussed what the necessary processes for such adaptation are and there is some empirical research (Dixon et al, 2010, Ahuja & Lamper, 2001, Etemad, 2004) that has applied the conceptual constructs of this model to a range of industries.

However, the extent of research on the dynamic capability model has considered firms that are already adapting and operating in fast changing environment but there is a somewhat limited amount of research that has examined the emergence of these processes for firms that have moved or are about to move from static circumstances to fast changing ones. It is perceived that development of dynamic capabilities in stable environments plays a crucially important role in obtaining sustainable competitive advantages.

Therefore, it is necessary to find out how these processes emerge, what causes their emergence and whether the nature of these causes has any impact on the exact trajectory of the development of these processes in stable environments.

Hence, the current research focuses on this last point and it has considered the case of the European Shipbuilding Industry for the empirical research.

The existing models consider dynamic capabilities as the most relevant for large multinational enterprises and almost ignore small and medium-sized companies. The current study assumes that the dynamic capabilities of small and medium-sized companies are sufficiently distinct from dynamic capabilities of large companies.

It is assumed in the current research that development of dynamic capabilities is even more important and relevant for small and medium-sized companies. The expected outcome of the current research will add to our perception of a dynamic capabilities framework in the case of small and medium-sized companies operating in relatively low-velocity environments.

The expected result of this study will support and help to develop further the theoretical framework. Complementing earlier models which have to a large extent been only about studying existing companies in fast moving environments, the study will attempt to identify and define how dynamic capabilities have evolved and have been an inseparable component in the success of SMEs in stable environments. This study attempts to make a value-added contribution by extending the dynamic capabilities perspective by empirically examining the relationship between dynamic capabilities of SMEs operating in stable environments and their competitiveness.

The study will also delineate key differences in the dynamic capabilities within stable and agile industries (as IT and pharmaceutical industry), while advancing the understanding of dynamic capabilities which exist in practice rather in theory. In addition, the study will lead to the testing of a theory, by testing the research propositions set out in the research framework and will seek to advance this theory by expounding a set of propositions regarding the relationships between dynamic capabilities and sustainable competitive advantages in stably industries, the effect of different learning models, organizations routines

and entrepreneurial behaviour on dynamic capabilities, which are more appropriate for small and medium-sized companies rather than large companies.

To summarise, the main expected contribution of the current study to existing theory is:

- to identify the processes of emergence of dynamic capabilities in stable environments;

- to identify dynamic capabilities which are more relevant for SMEs rather than MNEs;

- to identify whether the development of dynamic capabilities in stable environments leads to superior performance.

1.5. Expected contribution to practice

A dynamic capabilities perspective provides a valuable focus on change processes within the firm. However, owing to a lack of empirical work and problems in deriving managerial prescriptions from the perspective, it currently has limited utility (Ambrosini & Bowman, 2009).

The literature review suggests that time lags, complexity and uncertainty would suggest caution in making any strong assertions about the links between action and outcomes. So, informed by the dynamic capabilities perspective, what advice can be given to managers? Could it be suggested that all firms facing a dynamic environment need to have dynamic capabilities? If so, can any advice be offered in terms of which dynamic capabilities should be developed? Is it possible to develop a contingency or diagnostic approach that would serve as a practical model, e.g. 'if the environment looks like this, you need dynamic capabilities that look like that'. If this were possible, what would the contingency variables be? (Ambrosini & Bowman, 2009).

An expected contribution to practice would be to establish guidelines for managers, particularly in the European shipbuilding industry, on how dynamic capabilities could be developed in stable environments in order to combat uncertainty and continuously maintain competitive advantages in rapidly and radically changing environments.

As an outcome of the research it is planned to elaborate a set of propositions that outlines:

1. dynamic capabilities which are more applicable for SMEs in stable environments
2. emergence of dynamic capabilities in stable environments and their continual renewal
3. specific dynamic capabilities which are more effective in stable environments
4. the role of entrepreneurial management in development of dynamic capabilities
5. a linkage between dynamic capabilities and sustainable competitive advantages
6. which dynamic capabilities are more appropriate for small and medium-sized companies rather than large companies

This study also sets out to offer major contributions to the literature by identifying the causal linkages across time between firms' different capabilities.

The framework has several features that differ from those of existing models. The expected findings of this study might indicate that dynamic capabilities are important not only for firms in rapidly changing environments, but also for those in relatively stable industries.

1.6. Outline of the study

In Chapter 1, the research questions of the presented study are stated.

In Chapter 2, a literature review is undertaken to define the research propositions and draw up a conceptual framework.

Chapter 3 presents the methodological approach adopted to conduct the study. Here the rationale of the case-study methods, their validity and reliability are discussed. Thereafter, the methods of data collection and analysis are discussed in detail. Finally, research limitations and alternative approaches are considered.

Chapter 4 provides an overview of the industry and the case-study companies. Although the rationale for using the shipbuilding industry for the purposes of the current study is briefly

discussed in the Chapter 1, Chapter 4 offers a detailed overview of the industry and its main areas. This chapter also presents a detailed overview of the case-study companies, providing an overview of their history, description of the key persons, milestones in their development and some key financial data.

Chapter 5 presents a discussion and analysis of Marioff Corporation Oy, the first case-study company. Marioff is a unique example of a start-up company which has achieved an unprecedented leading position in the shipbuilding industry in the field of fire extinguishing systems. The company was even able to achieve a monopoly position in the cruise ship-building market and hold it for almost seven years. Marioff provides a great example of different types of dynamic capabilities and how they were developed and the need of different types of dynamic capabilities was changed over time.

Chapter 6 presents the data analyses of the second case-study company, Merima Oy. This company represents 'turn-key' outfitting companies and, similar to Marioff, is well established, mainly in the home market in Finland, but also in Germany and is well-known internationally. During its existence of over 30 years, Merima has successfully survived various crises and dramatic changes within the shipbuilding industry, thus demonstrating its possession of sustainable competitive advantages.

Chapter 7 presents the third case-study company, the German ship repair yard Lloyd Werft, selected because of its recognition as the best in class in ship conversions. Although the case of Lloyd Werft is not as convincing as the cases of Marioff and Merima in terms of the deliberate development of dynamic capabilities, it is nevertheless a great example of how a company could benefit from dynamic capabilities developed in a stable environment.

Chapter 8 presents a cross-case analysis, pursuing the same analytical structure developed and followed through in the individual case-study analyses in the Chapters 5-7.

Chapter 9 provides a summary of findings and conclusions of the study. It also presents contributions to theory and practice, any limitations of the study and areas of further research.

Chapter 2. Literature review

2.1. Introduction

In this chapter, the researcher will present a brief history of the development of the concept of dynamic capabilities; the differences between processes and capabilities, and define first and second order dynamic capabilities. This is important in order to understand the nature of the concept and its role in the field of strategic management. The researcher will identify specific gaps in the literature which will be addressed by the current study. A research model will be designed as a main guideline which will be followed throughout the research.

In today's world, all companies need to be able to function in chaotic, unpredictable business environment (Guillen, 2012). This is the reason why the dynamic capabilities view has become one of the most important business theories. The dynamic capabilities view, by addressing the question of how firms can cope with changing environments, has gained increasing prominence in management literature in recent years (Barreto, 2010).

The dynamic capabilities view is a contemporary view of how competitive advantage is sustained in dynamic markets (Cavusgil et al., 2007). And although the dynamic capabilities framework is based on such fundamental theories as resource-based theory, behaviour theory, transaction cost theory, it is relevantly new and undeveloped (Ambrosini & Bowman, 2009).

The dynamic capabilities framework presented by Teece, Pisano and Shuen in 1997 sought to analyse the sources and methods of wealth creation and capture by private enterprise firms operating in environments of rapid and radical change (Teece et al., 1997). Although it might seem contradictory to develop dynamic capabilities during stable times, this study aims to examine whether it is nevertheless essential in order to sustain competitive advantages and to stand out in the market.

The dynamic capability concept was initially designed for large multinational enterprises (MNE) (Augier and Teece, 2007). As small and medium-sized firms (SME) often face the

challenge of lack of resources, different dynamic capabilities might be more relevant for MNEs rather than SMEs. SMEs might also use different processes in the development of dynamic capabilities development compared to MNEs.

Before embarking on a study and an analysis of the many existing perspectives on dynamic capabilities, it is important first to define clearly what a dynamic capability is. The growing literature on this topic has provided distinct definitions of the concept. Although the definition of using competencies within and external to the firm to adapt to a changing environment (Teece et al., 1997) is commonly cited, the lack of a universally agreed-upon definition of 'dynamic capabilities' has led to some confusion in the field.

The first definition of dynamic capabilities proposed by Teece, Pisano and Shuen in 1997 was 'dynamic capability is the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments'.

The definition of dynamic capabilities found in Teece et al. (1997) was slightly modified in 2009 to read as follows: 'The ability to sense and then seize new opportunities, and to reconfigure and protect knowledge assets, competences, and complementary assets with the aim of achieving a sustainable competitive advantage' (Augier & Teece, 2009).

Since Teece et al.'s (1997) original contribution, many authors have offered their own definitions of dynamic capabilities (Ambrosini & Bowman, 2009). A few examples are as follows.

'Dynamic capabilities are the firm's processes to use resources - specifically the processes to integrate, reconfigure, gain and release resources - to match or even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resources configurations as markets emerge, collide, split, evolve and die' (Eisenhardt & Martin, 2000).

'A dynamic capability is a learned and stable pattern of collective activities through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness' (Zollo & Winter, 2002).

'Dynamic capabilities are those processes that operate to extend, modify or create ordinary capabilities' (Winter, 2003).

'Dynamic capabilities are the abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker' (Zahra et al., 2006).

'Dynamic capability is a firm's behavioural orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage' (Wang & Ahmed, 2007).

'Dynamic capability is the capacity of an organization intentionally to create, extend or modify its resource base' (Helfat et al., 2007).

Such a proliferation of definitions shows the dynamism generated by the topic and is reasonable given the fact that the concept is in its infancy, but it also produces some confusion that may hinder more effective progress within the field.

In order to eliminate possible ambiguity and confusion vis-à-vis in terms of definition of the concept in the context of the current study, a dynamic capability will be considered as a capacity systematically to sense and seize new opportunities and threats, and influence tangible and intangible assets and capabilities in order to create a new resource-base which would be valuable, rare, inimitable and nonsubstitutable (Augier & Teece, 2009).

2.2. History of the dynamic capabilities

A British economist, David Ricardo, in 1817 wrote that the companies earn profits because of the rarity of resources or capabilities (Ricardo, 1817). Nowadays, his theory explains why some companies are more successful than others in stable environments when changes are rare, in an even playing field scenario. The Ricardian theory can be explained in that in stable environments those companies which possess valuable and rare resources have greater competitive advantages when compared to others and are consequently able to force through greater changes to gain profit.

In contrast to Ricardo, a Czech economist, Joseph Schumpeter in 1934, asserted that in order for companies to earn profit, they have to possess non-imitable innovative capabilities, which result in entrepreneurial profits (Schumpeter, 1934).

The dynamic capabilities framework is the next step in the development of the Ricardian and the Schumpeter's theories which assume that companies can be successful only if they possess rare resources and can constantly innovate.

The dynamic capabilities foundations can be traced back to Penrose (1959) and her theory on the growth of the firm. Penrose emphasises that value creation does not come from a given company's resources rather from their deployment, and how much value is created would depend on how these resources are deployed, and how they are integrated within the firm. She also argues that, to grow, firms need to keep developing their expertise and to innovate, and that managers need to have entrepreneurial skills rather than managerial skills: 'an entrepreneurial competence is a function of imagination, whereas a managerial competence is largely practical execution' (Lockett, 2005).

Resource-based view (RBV) posits that competitive advantage is obtained through a firm's possession of heterogeneous resources (Wernerfelt, 1984), and that a sustained competitive advantage is obtained when no other firm can duplicate the benefits of this strategy. Barney (1991) argues that a sustained competitive advantage is derived from resources that are valuable, rare, imperfectly imitable, and non-substitutable. Dierickx and Cool (1989) add that sustained competitive advantage is enhanced when resources are accumulated over time,

easily acquired because of a firm's existing supply of that resource, interconnected to other resources, difficult to erode, and when it is difficult to discern the underlying variables and mechanisms for controlling it. While resources are generally said to accumulate over time, they may also be acquired through acquisition, merger, or joint venture (Barney, 1986; Wilson, 2010).

Despite the popularity of RBV in strategy literature (Newbert, 2007), some authors have claimed that it is static and does not address how resources create competitive advantage (Eisenhardt & Martin, 2000). Indeed, in rapidly changing environments, such as emerging markets, firms need to possess distinct capabilities to make better use of their resources (Penrose, 1959). Distinct capabilities enable firms to integrate, build, and reconfigure resources to address dynamic market conditions (Teece et al., 1997). Grounded in the work of Nelson and Winter (1982), Teece, Pisano and Shuen in 1997 introduced the dynamic capabilities framework to address how firms manipulate resources over time in support of a sustained competitive advantage (Wilson, 2010).

The dynamic capabilities perspective aimed to extend the resource-based view by addressing how valuable, rare, difficult to imitate and imperfectly substitutable resources could be created and how the current stock of valuable resources could be refreshed in changing environments. The concept of dynamic capabilities emerged in the 1990s, and the field has advanced considerably since (Ambrosini & Bowman, 2009).

2.3. Processes and capabilities to explain first- and second-order capabilities

The main objective of the literature review is to find processes (routines) of emergence of dynamic capabilities which could be applicable for small and medium-sized companies, mainly operating in a stable environment but also experiencing a transition from a stable to a more dynamic environment.

According to Augier and Teece (2009) dynamic capabilities can be disaggregated into three classes: the capability to sense opportunities, the capacity to seize opportunities, and the capacity to manage threats through the combination, recombination, and reconfiguring of assets inside and outside the firm's boundaries.

Although, according to the initial definition of dynamic capabilities by Teece, Pisano and Shuen (1997) of organizational learning, organizational processes and path-dependence were the first-order dynamic capabilities, in accordance with the latest models of dynamic capabilities by Augier and Teece (2006, 2007, 2009) the first-order dynamic capabilities were extended to the capacity to sense new opportunities, the capacity to seize new opportunities and the capacity to reconfigure resources. These capacities can be considered as first order capabilities while processes of the development of these first-order dynamic capabilities can be considered as second-order capabilities, in the case of small dynamic firms' they are acquisition by large companies, internationalization, experimentation, and knowledge codification.

Although the literature is clear that capabilities are processes or routines, 'capability' in 'dynamic capability' should not be separated from the adjective 'dynamic'. A dynamic capability is not a capability in the resource-based view sense, since a dynamic capability is not a resource. A dynamic capability is a process that impacts upon resources. Dynamic capabilities are about developing the most adequate resource base. They are future orientated, whereas capabilities are about competing today, and they are 'static' if no dynamic capabilities are deployed to alter them. Dynamic capabilities consist of repeated processes that have evolved through time (Ambrosini & Bowman, 2009). This concurs with Eisenhardt

and Martin (2000) who are strong in their assertions that dynamic capabilities actually consist of identifiable and specific routines.

Dynamic capabilities are embedded within a firm's processes or competencies (Zollo & Winter, 2002). Dynamic capabilities are highly patterned and repetitious and generally involve long-term commitments to specialized resources (Winter, 2003; Wilson, 2010).

The dynamic capability perspective extends the resource-based view argument by addressing how valuable, rare, difficult to imitate (VRIN) and imperfectly substitutable resources can be created and how the current stock of valuable resources can be refreshed in changing environments (Ambrosini, 2009). Applying Barney's (1991) VRIN framework can determine whether dynamic capabilities are the source of sustainable competitive advantage or not.

In the framework, 'valuable' means that they must be a source of greater value in terms of relative costs and benefits. 'Rareness' implies that they must be rare in the sense that they are scarce relative to demand for their services (Peteraf & Barney, 2003). This depends not only on rareness in terms of process or capability type, but on their functionality as well. This excludes processes and capabilities for which there may be functional substitutes (Peteraf & Bergen, 2003). Finally, for processes or dynamic capabilities to be the source of sustainable advantage, they must be 'inimitable' or at least difficult to imitate. This is likely to be the case for processes that are bundled together as capability inputs and for dynamic capabilities that involve complex bundles of complementary processes (Helfat et al., 2007).

Although the concept of dynamic capabilities emerged in the 1990s, the field has advanced considerably since. Dynamic capabilities are shaped by enabling and inhibiting variables within and outside the firm, including the perceptions and motivations of managers. It identifies processes that create dynamic capabilities, and it explains that dynamic capabilities do not automatically lead to performance improvements (Ambrosini, 2009).

The underlying assumptions on which the resource-based view of the firm is based are that resources are heterogeneous across organizations and that this heterogeneity can sustain over time. It is a theory to explain how some firms are able to earn super-profits in equilibrium and, as such, it is essentially a static view (Barney 2001; Priem & Butler 2001; Lockett et al. 2009). It does not specifically address how future valuable resources could be created or how

the current stock of VRIN resources can be refreshed in changing environments: this is the concern of the dynamic capability perspective.

The dynamic capability perspective focuses on the capacity an organization facing a rapidly changing environment has to create new resources, to renew or alter its resource mix (Teece et al., 1997), and it acknowledges that the top management team and its beliefs about organizational evolution may play an important role in developing dynamic capabilities (Rindova, 2001).

The main objective of any firm is to create value for shareholders and earn a rent, which would allow a firm to continue its existence and to prosper. In order for companies to be successful in a long run; they have to obtain sustainable competitive advantages. According to Teece, Pisano and Shuen (1997) to gain a more sustainable competitive advantage in the rapidly changing competitive milieu, companies should be able to successfully integrate innovative elements and develop their dynamic capabilities. Thus, development of dynamic capabilities becomes a main focus of companies working in fast and radically changing environments.

In summarizing studies of key researches in the field, it can be asserted that in order to promote development of dynamic capabilities, companies should develop organization processes such as knowledge acquisition, knowledge storage, knowledge distribution and new product development routines. Also, companies should develop deliberate, experimental and tacit learning as much on an individual level as on an organizational level. This will lead to learning organizations, a crucially important element for the development of dynamic capabilities.

However, the extant research on the dynamic capability model has considered firms that are already adapting and operating in fast changing environments and there is a dearth of research examining the emergence of these processes for firms that have moved or are about to move from static circumstances to fast changing ones. Thus, a study of the emergence of these processes will be one of the focuses of the current work.

A recent literature on dynamic capabilities demonstrated a radical shift in the concept. The following figure demonstrates the key elements of the dynamic capabilities concept described by Teece, Pisano and Shuen in 1997, and further extended by Augier and Teece in 2009.

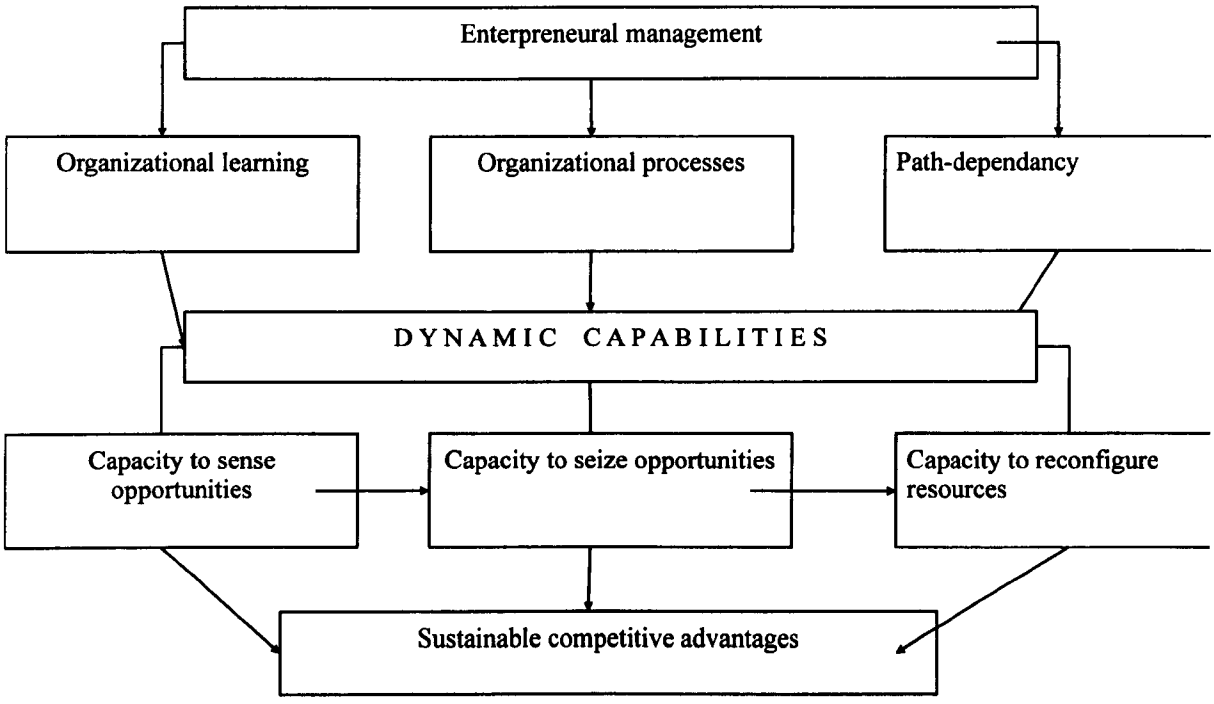

Figure 1. Dynamic capabilities components and their emergence

A key focus in previous studies was on reconfiguration of companies' resource base, where key elements were organizational learning, organizational processes and path-dependence. According to the most recent studies (Augier and Teece, 2009), the emergence of dynamic capabilities depends on capacities to sense new opportunities, capacities to exploit new opportunities and capacities to reconfigure resources: tangible and intangible assets. Thus, there would appear to have been a shift of focus from the ability to reconfigure its resource-base, to its capacity to sense and seize new opportunities. In order to develop these capacities, firms should still have relevant organizational processes and organizational learning, but the main attention is on capacities to sense and seize new opportunities.

2.4. Stability and dynamism in the environment

> *'If you only do what worked in the past, you will wake up one day and find that you have been passed by'* Clayton Christensen

The definitions of stability and dynamism in the environment is an important issue for this study, but is under-theorised at the moment. The differences between stable and dynamic environments is a core tenet of this study because the researcher's greatest concern is that different types of dynamic capabilities are required for companies operating in stable environments and that therefore different developmental processes should be applied.

One of the difficulties and reasons why the concepts of stability and dynamism in the environment are under-theorized is that these concepts are relative - so one industry is more or less malleable than another. There are no absolutes. Therefore, for the purpose of this study it was decided to specify some classification criteria.

In relation to the environment, dynamism can be characterized by the necessity to synthesize new, productive capabilities from the available resources in order to remain competitive (Goldman, 1995). The environment can be considered as dynamic if companies operating in such an environment have learned to thrive on change and uncertainty and not merely cope with them in order to remain successful (Goldman, 1995).

Generally, a dynamic environment is also characterized by newly formed or re-formed industries that have been created either by technological innovations, emergence of new consumer needs, or other socio-economic changes which in turn elevate a new product or a service to the level of a potentially viable business opportunity. A dynamic environment is also created when traditional industries experience fundamental shifts in competitive rules. The essential characteristic of a dynamic environment is the absence of any "rules of the game" which may pose a risk or provide an opportunity (Daniels et al, 2003).

High-velocity environments can be defined as very turbulent and intensely competitive business environments and can be considered as an extreme example of dynamic environments.

On the other hand, as the industry traverses the dynamic phase, the intense competition during this stage leads in turn to a shake-out phase. As consolidation takes place, the industry enters a stable phase characterized by a small number of large companies and although a stable industry may have some medium and small enterprises, the larger companies will tend to dictate the competition because they can exert influence based on Porter's competitive five forces (Porter, 1985). In fact, these are the companies that develop the most successful generic strategies in the industry. The transition to a stable environment is nearly always a critical period for companies in any industry. It is a period during which fundamental changes often take place in companies' competitive environments, requiring difficult strategic responses (Hitt et al., 2004).

The shipbuilding industry represents a good example of a stable industry in that it is dominated by a few large shipyards and radical change is a rare event. For the purpose of the current study, the researcher included in the ship-building industry category all companies directly or indirectly participating in it. For example, subcontractors of large shipyards, product suppliers, and ship repair and conversion yards.

Although the shipbuilding industry is considered to be an old and traditional industry, one of the issues with shipbuilding is its high operational gearing, whereby the loss of a single contract can be catastrophic. Consequently, while changes in the environment may not be quick, they can have a massive impact on individual firms.

As previously mentioned, the main focus of the dynamic capabilities concept is on fast and radically changing environments. This study sets out to assert that dynamic capabilities are important not only for firms in rapidly changing environments, but also for those in relatively stable industries.

Much of the literature seems to assume that capabilities already exist within the firm, as a strategic factor at the discretion of management (Kazanjian & Rao, 1999). The literature does not investigate factors which suggest how capabilities are created, rather how they are exploited.

The literature provides some kind of overview on how dynamic capabilities emerge in agile environments, but there are no models which deal with dynamic capabilities in stable

environments. It is assumed that different dynamic capabilities should be developed in stable and agile environments.

By studying dynamic capabilities in stable environments, it is important to distinguish between operational capabilities which enable firms to perform their ongoing tasks of making a living (Winter, 2003) and processes that are used to maintain the status quo (dynamic capabilities), to enter new businesses and extend old ones through internal growth, acquisitions, and strategic alliances (Helfat et al., 2007). Following the idea described by Helfat et al. (2007), it can be concluded that dynamic capabilities developed in stable environments through identifying and implementing new products, services or business models, frequently help to extend or modify operational capabilities of all types.

There are a few critics of existing models and one of them is that Teece's (2009) latest model makes a much-needed attempt to fill a gap in the knowledge on the subject, but does not cover it entirely. The model does not address the issue of environmental velocity equally for fast-changing and stable industries. Companies operating in volatile environments where change is common are more aware of the need to repeatedly reconfigure their capabilities (Moorman & Miner, 1998). Firms in turbulent environments are more apt to improvise and experiment than those in more stable environments. Thus, the existing models are more appropriate for high environmental velocity industries such as high-technology, chemicals, pharmacy industries that is to say, for companies operating in regimes of continuous rapid technological change. This is understandable because the term 'dynamic capabilities' is itself related to addressing rapidly changing environment. As fast-changing industries and stable industries are by their very nature very different, there should be a different approach in how companies try to develop their dynamic capabilities.

There is also a singular lack of empirical studies done in the industries with more stable environments. Some will undoubtedly claim that the dynamic capability theory is appropriate only for industries with rapidly changing technological innovative environments and find it even contradictory to apply "dynamic" capabilities to "stable" industries. But a counter argument is that any industry and any company to some degree face rapid and radical changes. Even companies which have long product life cycles face periods when radical changes are inevitable (recession, exchange rate movements, new regulations etc). Dynamic

capabilities may be most valuable when the external environment is changing rapidly or unpredictably, but a volatile or changing environment is not a necessary component of a dynamic capability (Zahra et al., 2006).

Companies which develop and practice their dynamic capabilities are becoming much better prepared for such radical changes than the companies which rely on their *ad hoc* problem solving capabilities. Indeed, companies operating in high velocity industries have a need for continuous change, while companies working in more stable environments come up with radical changes more rarely. The level of R&D, innovation differs greatly between high-velocity and stable industries. All these above mentioned facts highlight a need to treat companies working in rapidly changing technological environments and in stable environments in a different way.

Recent research shows that the average period for which firms are able to sustain competitive advantage has decreased over time (Wiggins & Ruefli, 2005). This is one of the reasons why the dynamic capabilities approach is relevant not only for companies operating in regimes of rapid technological innovation.

Another argument proving the need for dynamic capabilities in stable industries is that by finding and exploiting new opportunities, enhancing organization learning, developing innovative processes, companies can develop their radically innovative products and services which may destabilize the whole industry. This may put such companies at least temporarily out of the competition, giving advantages of temporary quasi monopoly and ultimately lead to more sustainable competitive advantages. For other companies working in this industry it would mean a rapid and radical change and those who will not be able to adapt to changing conditions quickly enough will disappear.

In stable environments, it is assumed that companies focus on exploitation of their existing knowledge and skills, tending to become more centralized, and increasing the efficiency of internal communication. But over time this will inevitably result in path dependencies regarding the type of accumulated knowledge in their possession. This leads in turn to a less developed sensitivity to emerging opportunities. These firms are likely to suffer from a lower level of dynamic capabilities and are therefore be less proactive towards exploring

opportunities outside their existing knowledge. By contrast, in the context of a turbulent environment, it is assumed that the focus will be on exploration (Van den Bosch et al., 1999).

Enterprises which successfully sense and seize new opportunities will ultimately grow and prosper. In order to sustain profitability and growth, firms should develop the ability to reconfigure resources, routines, structures, tangible and intangible assets in respond to even slightest change in the environment. According to Teece (2009), success will breed some level of routine, as this is necessary for operational efficiency; routines help the business to sustain constantly until there is a shift in the environment. The more radical a change is, the more significant should be the change in a structure, resources, and procedures. A crucially important element is to keep continuous alignment and realignment of specific tangible and intangible assets in response to exogenous events. An enterprise's capacity to continually align and re-align its resources mainly depends on the degree of decentralization, managing co-specialization, knowledge management and governance (Teece, 2009).

As mentioned above, existing models consider dynamic capabilities as a reactive tool for exogenous changes. The current study advocates that dynamic capabilities should become a tool for change or even for creating markets rather than merely being reactive. Many executives recognize the importance of adaptive capabilities, but the most important aspect is the understanding that the point of shaping and visionary strategies is to 'change the game' rather than to optimize the position in the market (Reeves, 2012).

The literature reveals that dynamic capabilities relate to high-level activities which in turn link to management's ability to sense and then seize opportunities, navigate threats, and combine and reconfigure specialized and co-specialized assets to meet changing customer needs, and to sustain and amplify evolutionary fitness. This approach begs the question of whether there is a linkage between dynamic capabilities and sustainable competitive advantages. Another approach proposed that dynamic capabilities do not necessarily lead to superior performance or competitive advantage (e.g., Eisenhardt & Martin, 2000; Helfat et al., 2007, Zahra et al., 2006) and that performance effects may depend on the characteristics of the resulting new resource configuration or on how managers use their dynamic capabilities (i.e., "sooner" or "more astutely"). The third approach contended that what

should be considered is an indirect link between dynamic capabilities and performance (e.g., Zott, 2003).

If dynamic capabilities had been considered as the capacity to create new customer needs, there would have been more evidence in this respect. If dynamic capabilities are deemed as a tool to drive markets from stable conditions to volatile conditions, which eventually leads to the creating of completive advantages, then the importance of evolving a theory on how to develop dynamic capabilities in stable environments is amplified.

The current study proposes that development of dynamic capabilities during stable times might lead to the creation of new, previously nonexistent markets and change in customer needs, and it should also teach companies to deal with uncertainty, which would in turn ultimately lead to superior performance under conditions of environmental volatility. This leads to the first research proposition.

Proposition 1: ***The potential gain from dynamic capabilities is significant even in stable environments.***

2.5. Entrepreneurial processes

Among different dynamic capabilities, top managers' capabilities are deemed as one of the most critical determinations of a firm's long-term competitive success (Zhang, 2007; Brumagim, 1994; Lado & Wilson, 1994; Eisenhard & Martin, 2000; Adner & Helfat, 2003).

While top managers may rely on a number of managerial capabilities to acquire and develop new organizational resources and capabilities to deal with environmental changes, two key capabilities stand out in the literature. The first is the fast response capability, which represents to managers' ability to react or response quickly to changes in the external environment (Hitt et al., 1998).

Several discussions (Nootebom, 2009) lead to the conclusion that the entrepreneur has to supply his own leadership and management with different characteristics and competencies, as follows:

- Acceptance of radical uncertainty
- Alertness, perceptiveness, open-mindedness, imagination vision, idiosyncratic perception and initiative, independence
- Judgment, sense of realism, decisiveness
- Ambition or need for achievement
- Charisma, strength of personality, capability of leadership, managerial capability

But still the question of how executives obtain their capacities to sense new opportunities remains. The literature suggests that a critical dynamic capability of top managers is mental model building, which reflects top managers' ability to change their existing beliefs and assumptions to fit with new environments or handle disconfirming information (Isenberg, 1984; Vandenbosch & Higgins, 1995).

Although the existing models contain the processes which are crucially important for development of dynamic capabilities, they almost entirely ignore the role of entrepreneurial management. However, the extent of development of these processes and capabilities depends on entrepreneurial management capacities.

When the information about future trends, the understanding of markets is obtained, executives use their entrepreneurial skills to sense new opportunities, but how do they do it? Several studies (Verona, 2003; Ford, 2006) named 'gut feeling' as a primary skill needed to anticipate future trends. They claim that this is the most important element for any innovative initiative, namely that an executive would have the right 'gut feeling' about what will work and what not.

Brilliant intuition in management is what distinguishes successful companies in changing environments (Jiao et al., 2010; Mathews, 2010). Although analytical insight is of great value, however, no many processes can take the place of sheer 'gut feeling' of top management and only when management has a vision, should processes and governance be considered to implement changes and prepare an organization for the next possible changes (Wilson, 2010). This point of view is also supported by Salvato (2003) who found the role of decision making by top managers and middle managers to be essential in order to enable resource-base change.

As already mentioned although literature to a certain extent reflects the importance of top management in the development of dynamic capabilities, it says nothing about entrepreneurial behaviour. To date, literature has not provided a compelling explanation for the ability of companies to continually create and exploit new opportunities. The current study considers entrepreneurial behaviour as a crucially important element in the development of dynamic capabilities. It should be highlighted that entrepreneurial behaviour should not only be found at top management level, but also on every level of organizational hierarchy. Entrepreneurial management is a key element in the theory of dynamic capabilities. Firstly, entrepreneurial behaviour triggers the development of organizational capacities for sensing and seizing new opportunities. Secondly, entrepreneurial management enhances organizational learning which is another key element of dynamic capabilities. Finally, the level of entrepreneurship determines the limit for company development.

Although entrepreneurial management plays a vital role in the development of dynamic capabilities, its role should not be overstated. Even the most incisive entrepreneurial management with extraordinary intuition needs to hone its skills in the discernment of the best options and changes to implement amongst the vast number of available opportunities

and implementing changes. Development of entrepreneurial behaviour as a development of dynamic capabilities is a continuous process, which should be exercised even during stable times.

The pursuit of corporate entrepreneurship requires established companies to strike a delicate balance between engaging in activities that optimize what they already know, while at the same time challenging themselves to embark upon new activities and opportunities to continually rejuvenate themselves. Leonard-Barton (1992) has aptly termed this conflict as a 'capability-rigidity' paradox, where existing capabilities provide the basis for a firm's current competitive position, but without renewal, these same capabilities become rigidities constraining the firm's future ability to compete.

In this regard, two main organizational pathologies that inhibit breakthrough inventions have been identified: the familiarity trap – favoring the familiar and the maturity trap – favoring the mature. By experimenting with novels (i.e. technologies in which the firm lacks prior experience), emerging (technologies that are recent or newly developed in the industry), and pioneering (technologies that do not build on any existing technologies) technologies firms can overcome these traps and create breakthrough inventions. (Ahuja & Lampert, 2001).

It has been suggested that in order to cope with these traps, firms should create an entrepreneurial top management team. One problem with entrepreneurial top management teams in large organizations is that as teams increase in size, problems of coordination and communication emerge. In addition, there might be also competition for resource allocation among members of entrepreneurial top management teams.

Compared to large firms, in small and medium-sized enterprises, entrepreneurial behaviour is usually considered to fall within the remit of the CEO. This might be appropriate enough for start-up companies. As firms emerge and more tasks are delegated, the entrepreneurial behaviour of the CEO alone is often no longer enough to develop dynamic capabilities. It is proposed that in order to develop dynamic capacity, firms should develop entrepreneurial behaviour on every managerial level. The existing studies on dynamic capabilities do not define a role for entrepreneurial management in the development of dynamic capabilities.

Nor do they measure the extent of development of dynamic capabilities which might be affected by different extents of managerial entrepreneurship.

Many studies (Pitelis & Teece, 2010; McGrath, 1995) emphasize the importance of collaboration and debate, the difference in cognition, in cognitive distance, form the source of variety as a basis for innovation, but the importance of entrepreneurship as a fountain of dynamic capability and novel opportunities seems to be particularly highlighted.

The role of middle management has received much less attention than has the role of top management. Middle management has been shown to have an important influence on organizational change in technology-driven organizations (e.g., Burgelman & Grove 2007).

Taylor and Helfat (2009) emphisize that top management should only set economic rewards for middle management, determines the formal organizational structure, and helps to shape the organizational social context and cognition, while middle management plays the vital role in the development of dynamic capabilities.

This leads to the second research proposition:

Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.***

2.6. Readiness to experiment

Although contemporary business literature highlights the crucial importance of gut feeling, it was noticed that after executives proudly described the importance of their capabilities to anticipate the future, they started to mention the importance of low-budget experiments, market trials and other elements of dynamic capabilities. The current study suggests that low-cost experimentations at small and medium-sized firms might substitute extensive R&D activities at large enterprises and trigger significant development of dynamic capabilities.

The literature recognizes that new and unique knowledge is important in today's dynamic marketplace (Bettis & Hitt, 1995; Bohn, 1994). Continually generating knowledge is among the major determinants of a firm's ability to develop and sustain core competencies, even when its competitive landscape undergoes radical change (Prahalad & Hamel, 1990). There are many models of knowledge creation which are explicitly described in a number of relevant text-books, but they have a tendency to be too theoretical.

In contrast, there is an approach to knowledge creation which defines it as "the detection and correction of error," but also includes the discovery and exploitation of opportunity (Lipshitz, et al., 2002). This can be interpreted to mean that organizational learning is an experimentation and implementation of successful innovations. An argument against this approach is that not every organizational learning is relevant and that even deliberate learning can be relevant only after it was tested in practice and positive results are achieved. But there are many contemporary businesses which greatly support this idea. For instance, Mr. Anand Mahindra –a third-generation scion of one of India's oldest business families asserts that a key success factor is a company's ability to encourage experimentation, which leads to innovation (Stewart et al., 2008).

Indeed, low-cost experimentations might represent the skills that add unique value to a firm's products or services. Distinctive new products and processes are natural outputs for those firms that continually develop and improve competencies, the means by which firms can better serve their customers. The development of new competencies can also enlarge a

company's strategic options and redefine its competitive arenas, allowing it to pursue new markets or customers where its competence is valued.

Experimental learning happens largely internally and generates new knowledge that is distinctive to the organization (Hitt et al., 1991). It usually involves individuals who have the discretion to experiment and a process that translates individual experiences into organizational knowledge. Despite the importance of acquisitive learning it might be less available for SMEs if there are no existing strategic alliances with other entrepreneurial SMEs or cooperation with MNEs. In this case, experimental learning may have the greatest potential for SMEs, to create or reinforce the firm's competitive advantage (Hitt et al., 1991). Thus, the current study proposes that experimental learning should be among the priorities for SMEs attempting to compete in today's dynamic but turbulent markets.

According to Isenberg (2011), early failures are important because they generate systemic learning about where opportunities may or not exist and how to address them, and they quickly free up people, capital, and ideas for more promising projects.

The enhancement of organizational experimental learning is especially important during stable environments, because 'trial-and-error learning also requires that a firm should travel outside its familiar comfort zone' (Miner et al., 2001). The possession of well-developed trial-and-error learning skills help a firm to overcome its fear of change (Zahra, 2006) and thus to increase the development and use of dynamic capabilities.

In order to develop organizations which would continuously practice experiments, it is important to create and reinforce a culture that counteracts the blame game and makes people feel both comfortable with and responsible for surfacing and learning from failures is clearly a role of senior executives (Edmondson, 2011). According to Edmondson (2011), this requires consistently reporting failures, small and large; systematically analyzing them; and proactively searching for opportunities to experiment. Top management should also send the right message about the nature of the work, such as reminding people 'we're in the discovery business, and the faster we fail, the faster we'll succeed'. Spotting big, painful, expensive failures is easy. But in many organizations any failure that can be hidden is hidden as long as

it's unlikely to cause immediate or obvious harm. The goal should be to surface it early, before it has mushroomed into disaster (Edmondson, 2011).

According to Kanter (2011), it is important to build the cornerstones of confidence – accountability, collaboration, and initiative – when times are good and achievement comes easily. She emphasized the importance of maintaining a culture of confidence as insurance against the inevitable downturns, a culture which would trigger development of performance under pressure – the ability to stay calm, learn, adapt, and keep on going (Kanter, 2011).

This leads to the third research proposition:

Proposition 3: ***Low-cost experimentations trigger development of dynamic capabilities.***

2.7. The relevance of size to dynamic capabilities

The existing dynamic capability models are especially relevant to multinational large enterprises, where there are well-developed global markets for the exchange of goods and services, while seeming to ignore small and medium-sized companies. Few studies have explicitly investigated what types of firms are more likely to benefit from dynamic capabilities. Teece (2007), for example, stated that dynamic capabilities are particularly relevant to multinational enterprises in global markets, but did not explain why dynamic capabilities are less relevant to small and medium-sized companies. This apparent gap in the literature is found to be puzzling in that it implies that small and medium-sized companies need different competitive advantages in order to survive, achieve legitimacy, and reap the benefit of their innovation (Sapienza et al., 2006).

In large companies, managers typically have more resources to devote to systematically exploring new opportunities and approaches to performance. Managers of small and medium-sized companies have to rely more on improvisation, which requires that a firm invent 'on the fly', that it proceeds without a roadmap to its destination, and that it contend with whatever may come its way.

Small and medium-sized enterprises represent a significant part of global economic activity (Griffy-Brown, 2007). In the EU, SMEs comprise 99% of all firms and employ more than 65 million people. Importantly, there is a strong link between economic growth, poverty reduction, and SME sectors across nations (Becker et al., 2005).

In the global competitive environment, small and medium-sized enterprises (SME) are forced to compete with multinational enterprises and globally competitive national companies. They must develop both the necessary and sufficient conditions for attaining the requisite competitiveness (Fahy, 2002; Grant, 1991) while handicapped by constrained resources (Bell et al., 1991; Bonaccorsi, 1992; Etemad, 1999; McNaughton & Bell, 2000; Miesenbock, 1988). This gives grounds for asserting that small and medium-sized companies should also

develop their dynamic capabilities, but their dynamic capabilities might be different from dynamic capabilities of large companies.

One main difference in dynamic capabilities comes from the fact that large firms tend to innovate by enhancing the performance of their current products by utilizing increasingly sophisticated new technologies, while SMEs can compete with their larger rivals by developing new-to-market products or services (Mosey, 2005). Many authors argue that to develop new-to-market products/services, firms need to develop different capabilities to those required for improvements to current products (e.g. Burns and Stalker 1962). Nevertheless, there is less agreement over what those capabilities should be.

Rycroft and Kash (2002) argue that to develop dynamic capabilities SME must continually build new networks of customers and suppliers by using a trial and error approach. However, this approach, while successfully utilized by large companies, may be more challenging for SMEs. For instance, SMEs may have more difficulty in building credibility with a potential partner (Mosey, 2005).

Some authors argue for the regular interacting by employees from different departments and functions within their respective organisations with their customers. However, this does not guarantee development of dynamic capabilities if these employees do not behave entrepreneurially.

Entrepreneurial behaviour is considered as a major distinction between large enterprises and SME in the development of their dynamic capabilities. This distinction might be caused by difference in ownership which impacts upon organizational structure (Mosey, 2005). Simon (1996) and Hadjimanolis (2000) contend that an owner / manager is the most effective leader of any business change as it usually requires a change in organizational structure that may initiate conflict with current operations. In contrast, Wheelwright and Clark (1992) argue, that it does not matter if a manager is an owner or not, the difference is caused by factors of efficiency. It can be concluded therefore that by having an entrepreneurial management, SMEs can more easily identify new opportunities.

The literature provides some examples of the emergence of dynamic capabilities which might be more relevant for SMEs, such as a limited structure around responsibilities and priorities,

extensive communication and freedom to create improvisation within current projects; learning through internationalization or cooperation between small and medium-sized companies with large enterprises.

2.7.1. 'Democratic dialogs'

Organizational ability to learn and exploit knowledge for competitive advantage is a critical success factor in the knowledge economy (Lietaer, 2002). Chandler and Hagström (2003) claimed that successful firms are not only competitive and know how to improve to stay competitive, they also know how to sustain these skills over time.

Organizational learning has been defined as a systematic change in behaviour or knowledge informed by experience (Cyert & March, 1963). Learning is believed to occur when experience generates a systematic change in behaviour or knowledge (Miner et al., 2001a).

Farr (2000) defines organizational learning as a process that provides organizational knowledge. Organizational learning is said to occur when the individual members detect the discrepancy between actual and expected results, and try to correct the errors or challenge underlying assumptions (Othman & Hashim, 2004). Organizational learning is concerned with improving the behaviour and capability of individuals so that the organization can more effectively respond to its environment (Murray & Donegan, 2003).

This is also supported by Nonaka and Takeuchi (Chandler et al., 2003) who argue that organizational learning is the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it into products, services and systems.

The organization learning literature posits that experience creates knowledge that can be stored into and retrieved from an organization's memory (Huber, 1991). And although there is no current consensus regarding a model for organizational learning theory (Polito & Watson, 2002), according to Bergh and Knah-Kiing Lim (2008) the theoretical model of organizational learning can be divided into two parts: absorptive capacity and organizational improvement.

In organizational learning theory a particular special attention is given to experience and tacit knowledge. Experiences can be translated into explicit knowledge that would guide organizational actions and behaviour (Amburgey et al., 1993).

Another concept of organizational learning is proposed by Shrivastava (1983). She identifies four organizational learning perspectives, namely, the process of organizational adaptation, the process of sharing and changing assumptions, the development of an action-outcome knowledge base, and the institutionalization of experience (Shrivastava, 1983).

As has been illustrated, there are different understandings of organizational learning, but in studying organizational learning concepts it is important not to confuse organizational learning, knowledge management and learning organization. Organizational learning is an integral feature of any learning organization that effectively utilizes its knowledge resources to generate superior performance (Pemberton & Stonehouse, 2000), whereas learning organization is an organizational environment which combines organizational learning with knowledge management.

Indeed, organizational learning plays an important role in the development of dynamic capabilities. The literature review demonstrates that the vast majority of researches find that no one type of learning has a determinant importance. Although some studies argue that some particular types of learning have a greater effect on organizational learning and development of dynamic capabilities. For instance, a body of Finnish research submits that in cases where 'democratic dialogue' is adopted as a regulative rule, desired organizational changes are likely to happen (Kalliola et al., 2006). Their core idea is that an organizational learning based on dialogues which are in turn based on a principle of give and take, rather than one-way communication, can guarantee the best of all development of dynamic capabilities in organizations. It is assumed that a limited structure around responsibilities and priorities, extensive communication and freedom to create improvisation within current projects all enhance the development of dynamic capabilities, particularly of SMEs in stable environments.

The same idea is supported by Englehardt and Simmons (2002), who argue that a flatter organizational structure and decentralized approaches are sometimes preferred to better handle communication, unexpected challenges, and change.

According to Bratianu (2010), a capacity to sense new opportunities and create new organizational knowledge may be obtained through social interaction. One can pursue the essence of seemingly contradictory things and accept others' views through dialogues. Dialogue is also a very efficient way of learning others' views that are different from one's own, and to accept and synthesize them. The dialogues create meanings (Bratianu, 2010).

Although the literature does mark differences in types of learning for large enterprises or SMEs, for companies working in stable or volatile environments, it is also assumed that there are some other types of organizational learning which are more relevant for SMEs operating in stable environments.

The only detected in the literature type of organization learning, which is considered as more relevant for SMEs operating in stable environments, was absence of hierarchies and unstructured routines. For instance Hamel (2002) emphasizes the importance of unstructured routines in order to develop entrepreneurial behaviour and innovation. Tetenbaum (1998) describes complex adaptive organizations as combinations of chaos and order.

Concerning hierarchies they are considered useful for large companies but inappropriate for SMEs. Hierarchies let sort work into departments, product divisions, regions, and the like with expertise, time-tested procedures, and clear reporting relationships and accountability so that we can do what we know how to do with efficiency, predictability, and effectiveness. Hierarchies are directed by familiar managerial processes for planning, budgeting, defining jobs, hiring and firing, and measuring results (Kotter, 2012). But hierarchies and standard managerial processes, even when minimally bureaucratic, are inherently risk-averse and resistant to change (Kotter, 2012).

2.7.2. Internationalization

In order to obtain a new resource-base which would be valuable, rare, inimitable and nonsubstitutable (VRIN), companies tend to focus on innovation and indeed, organizational innovations play a vital role in redefining the rules of selection in the operating environment. Of such innovations, a proportion will remain proprietary, while others become diffused more widely in the industry as the choices made by pioneering firms are imitated by others. It is argued that the combination of increasing interconnections between geographically dispersed markets and greater use of market-based transactions have intensified the incentives of companies to engage in the development of new routines, and to formalize them into transferable practices (Dunning, 2010).

The existing studies on dynamic capabilities recognize the importance of organizational learning for a company's survival and effective performance (Barkema, 1998; Bartlett, 1987; Hitt, 1994). The literature suggests that even when a firm has a technologically superior product, it must learn other skills preferably from different markets to position its product successfully and develop the competences that are necessary for superior performance (McGrath, 1995). Although the existing models mainly focus on internal processes of new knowledge acquisition, such as R&D or on exploitation learning, knowledge creation through internationalization is becoming more and more popular in recent studies, such as those of Zhu et al. (2007), Zahra et al. (2006), Prange & Verdier (2011).

The literature (Nousiainen, 2011, Lee, 2001) concedes that through internationalization, SMEs may gain a substantial dynamic capability by exercising a learning-by-duplicating process through the imitation and emulation of internationally successful individuals and organizations. Indeed, through systematic learning, SMEs can copy complete systems of advanced business operation such as a special manufacturing process or processes of managing efficient R&D activities, which might not be present in the domestic market.

The literature (McGrath, 1995; Prange, 2011) suggests that internationalization might be an ideal solution for SMEs to develop dynamic capabilities much faster than if they would operate only locally and suggests using a strategy of international expansion at the early stage

of the development. It is proposed that international expansion can promote organizational, especially technological, learning, facilitating the development of skills and competences that help a firm to develop its dynamic capability. The diversity of a SME's international business environment enhances its knowledge stock through learning based on interactions with local knowledge bases and exposure to different systems of innovation.

The literature (Filatotchev & Piesse, 2009) suggests that SMEs should seek internationalization in order to develop their distinctive and dynamic competencies to empower equally distinctive competitive strategies that can lead to potent competitiveness enabling them to compete against other companies, regardless of size (Etemad, 2004). Even more, it is argued that learning though internationalization can substitute at SMEs the role which R&D plays at MNEs (Filatotchev & Piesse, 2009).

The above mentioned argument is also supported by Torres (2011) who asserts that dynamic capabilities develop within the firm through a complex mix of learning that the firm generates through the trial-and-error handling of its internal processes (e.g. product innovation) as well as from external processes (e.g. market servicing). The more diversified processes the firms manages, the more the firms develop dynamic capabilities, which retains and increases firms' competitiveness in changing contexts. She also argues that firms' internationalization is the vital process of the development of the dynamic capabilities (Torres, 2011). It was also found that majority of studies which suggest internationalization as an effective tool to develop dynamic capabilities suggested it for small and medium-sized enterprises (Olejnik & Swoboda, 2012; Cunningham, 2012).

2.7.3. Collaboration between small and medium-sized firms with large enterprises

Although having an entrepreneurial management SMEs can more easily identify new opportunities, in exploiting new opportunities, SMEs have a number of disadvantages when compared with large companies. If new opportunities require significant technological changes, SMEs possess fewer resources and cannot develop these technologies by intensive

R&D or mergers and acquisitions. Facing difficulties to sustain their R&D expenses and struggling to attract, retain, or motivate valued researches (Branzei & Vertinsky, 2003), SMEs should develop different dynamic capabilities to sustain their competitive advantages. As one solution, SMEs tend to cooperate with other companies (often with large companies) and thus develop necessary technologies.

According to Cegarra-Navarro (2005) strategic alliances between SMEs and large enterprises constitute one of the main ways of acquiring knowledge that the company needs and does not possess. This is also supported by Meyer (2004) and Hitt et al. (2005) who claim that establishing relationships with other firms provides opportunities to enhance their technological and innovative capabilities and, hence, to increase their competitiveness.

Large companies can be interested in cooperation with SMEs because of SMEs tend to have more lean management and consequently a more flexible organization. This enables SMEs to adapt changes quicker and thus be more reactive.

A quicker reaction also implies a capability to learn sufficiently quickly. It has been recognized that the ability to learn quickly in order to alter the resource configuration in adapting to market change has become crucial to performance in dynamic situations (Chan & Montealegre, 2007).

Continuous experimentation can be another type of dynamic capability which SMEs might use more effectively. As SMEs gain experience and credibility by transferring their own technologies into new areas, they can then experiment with sourcing new technologies to meet emerging needs. Yet, to perfect such learning requires systematization so that managers routinely reflect upon development processes. In showing this strategic and operational flexibility and capability to learn and adapt, SMEs can offer a powerful competitive advantage over their larger rivals (Mosey, 2005).

This assertion might not be valid for highly dynamic industries such as telecommunication, pharmaceutical industries, where large companies are used to the continuous pressure for innovation and change. With a larger variety and pool of resources available, larger firms can undergo transformation through a process of dynamic learning as effectively as smaller firms (Majumbar, 2000). But in more stable industries, SMEs are assumed to be significantly more

dynamic and open to new knowledge and therefore more adaptable to a changing milieu. In stable environments, large firms may become sluggish and find it hard to change because of commitments to particular ways of doing things.

It is proposed that organization learning plays a vital role in SMEs' development of dynamic capabilities and SMEs' might be more effective in exportation and exploitation learning than large multinational enterprises (MNE). Innovative small firms are generally characterized as being flexible and having the ability to respond faster to changing needs and environments (Sawers et al., 2008).

This argument is supported by different studies which have shown that SMEs and entrepreneurial small companies in particular contribute to the generation of new ideas and radical breakthroughs (Shan et al., 1994). As a result, these firms are likely to enjoy transient monopoly advantages and gain abnormal profits, thus, challenging business groups' market power through exploiting new ideas and radical breakthroughs (Ireland et al., 2003).

However, although entrepreneurial SMEs can produce innovative ideas, they often do not have the resources to commercialize their ideas (Teece, 1996). To access needed capital, entrepreneurial firms may be willing to transfer partial ownership to or even be acquired by business groups (Zhu et al., 2007). Acquisition of such entrepreneurial SMEs is an effective type of dynamic capabilities for large MNEs and such entrepreneurial SMEs might be highly valued. Thus, it is not only by being partly or fully acquired by large MNEs that owners of entrepreneurial SMEs can be generously refunded for their entrepreneurial efforts and ideas, but their acquired companies will also gain competitive advantages by getting access to extensive financial resources, which were their main constrains to exploit new opportunities.

This discussion leads to the final proposition:

Proposition 4: ***A different set of dynamic capabilities is needed for SMEs compared to MNEs.***

2.8. Research framework

The current research framework will define the boundaries of the case study and it will also define the research propositions which will serve as a general guide to conduct the case study (Yin, 2009).

In summarising the literature review, it was concluded that the ability of a firm to develop dynamic capabilities in stable environments, possession of entrepreneurial management at all levels, conducting low-cost experiments which can substitute extensive R&D activities at large companies, and the ability to discern different dynamic capabilities which are more relevant for SMEs rather than MNEs will lead to superior performance of SMEs operating in low velocity industries or experiencing the transition from low velocity to high velocity environments. Such derived superior performance will guarantee a company a competitive advantage, as demonstrated in the figure bellow.

Figure 2. The concept of competitive advantage creation by development of dynamic capabilities

The literature review reveals that dynamic capabilities are used to create and lead a change in the marketplace and to develop a competitive advantage (Alavi & Leidner, 2001). It is argued that dynamic capabilities should not only be reactive to changes but proactive in the sense of

creating changes. The idea of development of dynamic capabilities even in stable environments is to produce products/services which the world has not seen before, but which are valuable, rare, inimitable and nonsubstitutable. It seems obvious that organizations should provide such products and services which matter to customers, but the customers often do not know what they really need. According to Nordström and Ridderstråle (1999) if a company wants to be really competitive it should somehow ignore its customers. The idea is that customers can wish for only products or services they know about, but unlikely they can wish for something they have never seen. The customers cannot even imagine which innovative products/services they might be offered. These kinds of ideas are partly described and developed in Blue Ocean Strategy (Kim & Mauborgne, 2007), Steve Jobs (Isaacson, 2011) and others. The objective of developing dynamic capabilities in stable periods is not only to become adaptive and well-prepared for possible exogenous changes, but to create market changes (Eisenhardt & Martin, 2000), destabilize them and lead the changes.

The literature review also reveals that the dynamic capabilities concept is used mainly only for companies operating in high velocity industries. The current study seeks to justify that dynamic capability is a vital element in building sustainable competitive advantages in relatively low-velocity environments. It is assumed that one of the main distinctions between companies working in stable and agile environments is rooted in path-dependence. Companies operating in stable environments which do not practice development of their dynamic capabilities might be less used to uncertainty and changes and thus more path-dependent.

Path-dependence still plays a crucial role in the development of dynamic capabilities, because success in one period leads to the establishment of "valid" processes, procedures, and incentives to manage the existing business. Behaviour theory holds that when firms succeed, they are apt to continue to utilize the resources, routines, and initiatives associated with this success (Cyert & March, 1963). Companies should be very cautious with their path-dependency, because 'this can have the unintended effect of handicapping the new business' (Teece, 2009). The discussion leads to the conclusion that development of dynamic capabilities is important not only in agile times but also in stable environments. It is proposed that continuous practice of changes and acting outside a given comfort zone leads to better adaptability when the velocity of an industry increases.

It was also found that the key elements of the existing dynamic capability concept are capacities to sense and seize new opportunities and reconfigure resources. These elements are fundamental in the current study as well, but it should be studied how to develop these elements and how they become embedded in a company operating in a relatively low-velocity industry. It is claimed that in low-velocity industries like shipbuilding, companies tend to become hidebound with their existing knowledge. But the literature does not provide a straightforward answer as to how companies could continuously learn, remain flexible and open to new opportunities even in stable environments.

The discussion suggests the following proposition:

Proposition 1.

The potential gain from dynamic capabilities is significant even in stable environments.

The previous studies highlight the role of entrepreneurial management and characterize an entrepreneur as someone able to cope with uncertainty (Minniti & Bygrave, 2001). The importance of entrepreneurial skills in senior managers is described by a number of papers (Augier & Teece, 2009; Zahra et al., 2006; Sapienze et al., 2006). Entrepreneurial skills are getting more and more important while 'the new normal means constant change' (Isenberg, 2010). The literature also suggests that a critical dynamic capability is top managers' mental model building capacity, which reflects top managers' ability to change their existing beliefs and assumptions to fit with new environments or handle disconfirming information (Isenberg, 1984; Vandenbosch & Higgins, 1995).

Although literature has not provided a compelling explanation for the ability of companies to continually create and exploit new opportunities, it was found that entrepreneurial behaviour is a crucially important element in the development of dynamic capabilities. It should be highlighted that entrepreneurial behaviour should not only be found at top management level, but also on every level of organizational hierarchy.

It is also proposed that the entrepreneurial activities should not only consist of the processes but the very heart of the organizational culture. The entrepreneurial activates influence the

selection of resources and skills and promotes organizational learning processes to capture external knowledge as new situations arise.

Thus, it was suggested that entrepreneurial management is a key element in the theory of dynamic capabilities. Firstly, entrepreneurial behaviour triggers the development of organizational capacities for sensing and seizing new opportunities. Secondly, entrepreneurial management enhances organizational learning which is another key element of dynamic capabilities. Finally, the level of entrepreneurship determines the limit for company development. The discussion led to the following research proposition:

Proposition 2.

The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.

According to Agarwal and Helfat (2009), incremental strategic renewal, if undertaken proactively, may enable firms to cope with changes in the external environment as they take shape, thereby reducing the need for a much larger and more difficult transformation later on. Such proactive incremental renewal can include experimentations outside the core business, such as through corporate venturing, or it can include incremental alterations to the core businesses of the company, or low-cost experiments with novel ideas.

Indeed, the same idea is supported by Ahuja and Lampert (2001) who assert that low cost experiments with novel ideas help companies to break path-dependance and ensure a sustained pace of innovation. Miner et al. (2001) also found that new product trials based on new core technology require a number of experiments and middle management improvisation.

The discussion leads to the following proposition:

Proposition 3.

Low-cost experimentations trigger development of dynamic capabilities.

The literature review also reveals that the dynamic capabilities concept is used mainly only for large multinational enterprises. The current study assumes that the different approach to development of dynamic capabilities in SMEs should be distinguished. Large enterprises have a very different pace of actions when compared with SMEs. In most cases, SMEs cannot afford long decision-making and knowledge transfer processes.

In most cases, SMEs do not have the same extensive financial resources as large enterprises. It is therefore logical to conclude that some dynamic capabilities might be more relevant for large companies rather than for SMEs and consequently SMEs might be expected to develop a different set of dynamic capabilities.

Some studies suggest that although cooperation between small and medium-sized firms with large enterprises is considered to be an important tool in the developing of dynamic capabilities, this evertheless remains open to question. For example, collaboration might prove somewhat complicated because of the very different approaches of SMEs and large enterprises to these processes. It would be ideal to have fruitful collaboration between SMEs and large enterprises in terms of the transfer of knowledge and entrepreneurial approaches, but it should be empirically tested as to whether these kinds of collaborations work in practice. Innovative ideas are unlikely to be gleaned from sluggish giants with an intransigent culture. The recent world economic crisis demonstrates well that there is not much of a positive nature to be learned from such companies as such companies are not always the best source for innovative ideas. Innovative ideas cannot be learned or imitated from others. Indeed, rather than rely on cooperation with large enterprises, SMEs should develop those dynamic capabilities which are the most relevant for them, such as limiting structures around responsibilities and priorities, encouraging extensive communication, thereby creating a freedom for improvisation within current projects and internationalization. This leads to the following proposition:

Proposition 4.

A different set of dynamic capabilities is needed for SMEs compared to MNEs.

Thus, by examining the above stated propositions this research will study whether the development of dynamic capabilities in stable environments, an entrepreneurial top and middle management, low-cost experiments which substitute extensive R&D activities at large enterprises, and the development of different dynamic capabilities which are more relevant for SMEs would lead to competitive advantages which would consequently in turn lead to companies' superior performance.

2.9. Conclusions

Since the publication of Teece et al.'s (1997) seminal work on dynamic capabilities, the topic has become one of the most active research areas in the field of strategic management (Stefano & Peteraf, 2010). Dynamic capabilities deconstructed: a bibliographic investigation into the origins, development, and future directions of the research domain. While there has been much interest in dynamic capabilities, there is by no means unanimity as to what is meant by the concept, let alone its implications and significance (Di Stefano et al., 2010). These debates lead to some doubts the existence of dynamic capabilities as more than a fanciful concept, as remarked by Winter (2003).

Thus, one of the primary objectives of the current study is to find out whether dynamic capability is considered as important at all in changing the shipbuilding industry.

The focus of the study is to define dynamic capabilities in terms of how they emerge in different contexts, rather than in terms of what they are or in terms what they do.

The literature review shows that existing studies consider dynamic capabilities as a capacity needed only in rapidly and radically changing environments and almost entirely neglect their importance in stable times.

Theory and prior research have noted potential contributions of dynamic capabilities in the pursuit of sustainable competitive advantages, but little systematic attention has been given to showing how dynamic capabilities could be developed in relatively moderate-velocity industries.

The literature suggests many factors that might enhance the development of dynamic capabilities, but it does not treat large multinational enterprises and small and medium-sized enterprises separately. The current study argues that different dynamic capabilities are more efficient and effective in the case of MNEs and SMEs.

Although some researchers have highlighted the importance of top management in development of dynamic capabilities, the importance of entrepreneurial behaviour on every managerial level is underestimated.

These are the gaps which further studies no doubt seek to close.

The current study makes four major interrelated points. Firstly, the development of dynamic capabilities in stable environments is important. Secondly, the process of emergence of dynamic capabilities in moderately low velocity industries differs from high velocity industries. Thirdly, some types of dynamic capabilities are more effective for small and medium-sized companies than for large enterprises. Fourthly, low-cost experimentations at SMEs can substitute for expensive R&D activities at MNEs, and can themselves constitute an effective dynamic capability. Finally, entrepreneurial behaviour on every managerial level plays a major role in the development of dynamic capabilities.

It should be acknowledged that the existing conceptual framework on dynamic capabilities still needs to create new typologies, find associations and provide explanations. Because of a lack of empirical studies, particularly of small and medium-size companies operating in stable industries like shipbuilding, it is proposed to conduct an empirical study to address the research questions.

Although the literature partly answers the question of how SMEs develop their capabilities and differences in their emergence compared with large enterprises, it does not identify what types of dynamic capabilities might be more effective in stable environments.

The implication of development of dynamic capabilities in stable environments is that companies should not create 'once-and-for-all' solutions but continually reconfigure their capacities and resources to protect their competitive lead. Zahra et al. (2006) suggest that the more managers exercise dynamic capabilities, the more skilled they become with these capabilities. It was found that literature has not addressed how a firm may keep its dynamic capabilities fresh. Thus, a fruitful avenue for the research would be to develop, explore and test ideas about how firms resolve this issue.

Chapter 3 – Methodology

This chapter presents the methodological approach adopted to conduct the study. Here the rationale of the case-study methods, their validity and reliability are discussed. Thereafter, the methods of data collection and analysis are discussed in detail. Finally, research limitations and alternative approaches are considered.

As stated above, the literature lacks in-depth studies of processes of emergence of dynamic capabilities in stable environments. According to Ambrosini (2009) future studies should focus on the nature of these processes in order to provide a deeper understanding. For this reason, an exploratory route to the research which could better provide the meaning and the interpretation of the experience of companies moving from stable to agile environments has been chosen. The study will have an interpretive approach based on case-study research methods. Such a theoretical structure will better enable the study to explore how dynamic capabilities emerge in organizations that experience a transition from low velocity to moderately high velocity environment, and the impact of size of an organization and specific entrepreneurial characteristics on the emergence of dynamic capabilities.

3.1. Research philosophy

There are a few important reasons why we do need philosophy in business research. First of all, it helps to define a methodological choice. In order to choose a relevant methodological approach to business research, it is essential to establish a philosophical position. Having a philosophical position helps also to make the right research choices and to identify appropriate perspectives and inferences. It can be claimed that the philosophical position is a ground for any business research in that it gives guidance to the research.

There are four main philosophical positions: 'empiricism, subjectivism, realism and rationalism' (Locke, 2007). These philosophical positions have a unique view on ontology

(what is the real) and epistemology (how could this real be understood or studied). All these philosophical trends attempt to solve the dilemma concerning what is social knowledge and how this knowledge was obtained. They are often interpreted differently and considerable variations exist in descriptions of their nature and their influence (Hjørland, 2005).

Key ontological questions concern whether or not social reality exists independently of human conception and interpretations; and whether there is a common, shared, social reality or merely multiple context-specific realities; and whether or not social behaviour is governed by 'laws' that can be seen as immutable or generalisable (Ritchie & Lewis, 2003). Epistemology is concerned with ways of knowing and learning about the social world and focuses on questions such as: how can we know about reality and what is the basis of our knowledge (Ritchie & Lewis, 2003)? However, while epistemological and ontological commitments may be associated with certain research methods - such as the links between a natural science epistemology and survey research, or between an interpretivist epistemology and qualitative interviewing - the connections are not deterministic (Bryman & Bell, 2003) In other words, while qualitative interviews may often reveal a predisposition towards or a reflection of an interpretivist and constructionist position, this is not always the case. This means that the connections between epistemology and ontology are best thought of as tendencies rather than as definitive connections (Bryman & Bell, 2003).

The current study is grounded in subjectivism. Subjectivism embodies those views that construe the social world as an outcome of the interpretative activities of the individual actors with whom they socially construct reality. Social reality is nothing more than a negotiated outcome between individual interpretations of 'what is going on' (Johnson et al., 1984). Subjectivism expresses the fact that we cannot know everything, or let alone know anything for sure. Because everyone's mind is different everyone experiences events differently (Crabtree, 2000). One of the main arguments for subjectivism is that although empiricism expresses the view that human activity is best understood as observable behaviour, taking place in observable material physical circumstances (Johnson et al., 1984) can do no more than just summarise what has been observed.

If empiricism is the view that experiences, observations or senses of data are the only or the most important way of acquiring knowledge, then, in contrast, rationalism is the view that

rational intuitions are the most important way of acquiring knowledge (Hjørland, 2005). Rationalism understands society as an objective and constraining structure of ideas. Such ideas or meanings are not the attributes of individuals. They are beyond any one individual consciousness. Such meanings are not directly accessible to observation, but need to be delineated by theoretical concepts, which connect them with those of our direct experience (Johnson et al., 1984). Even more, in its extreme form rationalism is a position that does not recognise the role of experiences (Hjørland, 2005).

Although, as mentioned above, there are four main philosophical positions, most debate in the philosophy of social science still works on the assumption that there are two basic positions: Firstly, positivism, which is associated with empiricism, and secondly interpretivism, which is associated with subjectivism.

A typical positivistic approach is to acquire knowledge from practical experience such as observation and experimentation – this means everything which can be precisely measured. Usually, a positivistic approach entails a relatively large research scope. Due to the fact that the dynamic capabilities perspective is relatively new, it does not provide an in-depth understanding of all its aspects. Development of dynamic capabilities in transferring from low velocity to high velocity environments has hardly been studied at all. One reason for this could be that there is currently not a wide enough scope for positivistic study, which is the most popular approach.

The current study acknowledges that there is no well-developed theory on the emergence of dynamic capabilities in relatively low-velocity industries. Consequently, first it is necessary to acquire in-depth knowledge of the experience of companies which have successfully managed to develop their dynamic capabilities in low velocity environments and adapt to rapid and radical changes. An interpretative approach would appear to be the most appropriate for these needs.

The interpretive approach implies that received knowledge will always be subject to the individual interpretation of a researcher and thus it may vary from researcher to researcher. For interpretivism there is a truth, but it is related to some particular situation, time and person.

Despite conventional wisdom that an interpretive approach is more appropriate for complex and broad issues and should not be applied to all sectors due to the low reliability of interpretive studies, the interpretive approach will be applied for the current study because a stated aim is to develop the theory and to make conclusions related to relatively narrow areas, not simply to establish a cause-effect relationship between variables, but also to understand the way in which the interviewees interpret the facts.

3.2. Research strategy and methods

In this section, the research framework, the chosen approach for data collections and analyses, the research approach, inclusion criteria and a process of the study will be described and justified.

An identified research framework is needed to have a good understanding of the existing research results upon which new and relevant research activities will be built. It is also important to have an understanding of the appropriate research approaches for producing new knowledge (Jokela, 2000). A research framework defines the categories of outputs that any given research can produce. It also defines a set of different research activities. Moreover, it defines what kind of research activities can be used to produce specific outputs.

3.2.1. Research approach

According to Hair et al. (2007) qualitative research is the preferred method where little is known about a research problem or opportunities; where previous research only partially or incompletely explains the research question; if current knowledge involves complex or evolving phenomena that need to be organized or simplified to examine further; if the researcher needs to more fully understand phenomena to clarify patterns and themes; and if the primery purpose of the research is to propose a conceptual/theoretical framework that represents current reality and could eventually be tested with quantitative research.

A qualitative approach is chosen as a main avenue for the data collection and analyses because it offers a better opportunity to explain, describe, illustrate, and explore specific aspects of the emergence of dynamic capabilities. As justified in the literature review, the dynamic capability concept is relatively undeveloped. There is no general agreement on either the basic concepts, or even a definition. That is why there is a need not only to test the theory but also to develop it. Although the concept of dynamic capabilities was presented by Teece, Pisano and Shuen for the first time already in 1997, it still remains unclear the processes of the emergence of dynamic capabilities remains unclear. The current study is

focused on SMEs, and there are even fewer studies explaining the processes of the development of dynamic capabilities in SMEs rather than MNEs.

A qualitative approach leaves more space for intuition. As the recent business literature argues, 'if everyone just followed the data, they'd all end up in the same place' (Gardiner, 2011). The challenge in studying the processes of emergence of dynamic capabilities in companies is to understand whether the executives developed dynamic capabilities deliberately or whether they merely acted 'ad hoc'. This challenge is also supported by Dekker and Ambrosini (2013) who assert that often executives present their actions as purposeful creation, extension and modification of their unique resource base, while/ although this is not always the case.

It should be acknowledged that the number of studies on dynamic capabilities which are built on quantitative methods and mathematical models vastly exceed the number of studies which emphasize qualitative techniques (Podolny, 2009). But there are a number of reasons why the interpretive approach is more relevant to the current study and namely,

- a lack of sophisticated theoretical development of dynamic capabilities requires more exploratory and theory-generating research rather the empirical testing
- compared to a quantitative study, an interpretive research takes a more holistic approach to the research object and studies a phenomenon in its context and thus allows deeper understanding of the phenomenon (D'Iribarne, 1996)
- the third argument is that the respondents may be unfamiliar with the subject and the provision of additional explanations before asking questions might have crucial importance
- the fourth benefit is that interpretive research goes beyond the measurement of observable behaviour (the 'what'), and seeks to understand the meaning and beliefs and underlying action (the 'why' and 'how') (Buckley & Chapman, 1996)
- finally, the quantitative approach can never take full account of the human factor.

Qualitative, smaller sample studies are likely to be more appropriate for understanding the subtlety of resource creation and regeneration processes (Ambrosini & Bowman, 2009). To understand fully firm-specific resources, their context and how they were created or renewed in practice requires fine-grained investigations and to obtain rich and contextualized data qualitative fieldwork (Godfrey & Hill, 1995). Because the subject of the current research will focus around individuals' perceptions, beliefs, expectations and other intangible phenomena, qualitative methods will be particularly appropriate for the purposes of the study.

3.3. The case study method

The exploratory nature of this study would suggest the use of a qualitative methodological approach. The case study method is considered a useful tool to understand the complex nature of dynamic capabilities and was consequently chosen to conduct the current study.

Case study is a documented description of a particular person, group, organization, activity or event. Actions taken by individuals or group in the case are described, and their reactions, responses and effects on other participants are compared in order to draw conclusions (Hair et al., 2007).

Case studies provide a systematic way of looking at events, collecting data, analysing information, and reporting the findings. By conducting case studies it is hoped to gain a better understanding of why an event happened as it did and what might be important to look at in future research (Hair et al., 2007).

According to Eisenhardt (1989) a case study research is especially appropriate in new topic areas. Although the dynamic capabilities paradigm can no longer be described as novel (in this study it is considered to have been in existence since 1997 when Strategic Management Journal published the article 'Dynamic capabilities and strategic management' written by Teece, Pisano and Shuen), nevertheless, there is almost no research which study the processes of emergence of dynamic capabilities in SMEs operating in low-velocity industries.

For this reason, the embedded multiple case research design (Yin, 2009) was chosen for this study. The embedded design denotes several units of analysis (Bourgeois & Eisenhardt, 1988). The study was conducted at three levels: the firm - its strategy, performance, faced changes, implemented changes; the top management team - personalities, management style and priorities, interactions with other members of the organization, clients, partners, the decision making process; the middle management - their perception of their role in the company, interactions within the organization, clients and partners.

Multiple case design allows a replication logic (Yin, 2009) - that is, the logic of treating a series of cases as a series of experiments - each case study serves to confirm or disconfirm the inferences drawn from previous ones. While a multiple case design is more demanding than a single case, it provides more reliable models (Bourgeois & Eisenhardt, 1988).

One of other reasons for choosing multiple case study research design is that the literature review has determined the answers about what is known on the topic (Yin, 2009), theoretical, sharper and more insightful research propositions were designed, but the questions of 'how' and 'why' small and middle-sized shipbuilding companies which experience a transition from low-velocity to high-velocity environments evolve their dynamic capabilities, remained unanswered.

The case study analysis is based on a range of qualitative research methods that use a systematic set of procedures and simultaneous processes of data collection and analysis to test the theory and advance a given phenomenon (Strauss & Corbin, 1998). This approach is designed to assist researchers in producing "conceptually dense" theories that consist of relationships among concepts representing "patterns of action and interaction between and among various types of social units" (Strauss & Corbin, 1998).

Advocates of this method as an interpretive approach seek a continuous interplay between data collection and theoretical analysis in order to examine causal factors and patterns of experience (Riley, 1995). Because of this, the approach enables understanding to be formed into concepts with a priori definition based on other researches (Daengbuppha, 2006).

For this study, the case study analysis was adopted for the following reasons:

- the general aim was to explain complex social phenomena such as adaptation ability, entrepreneurship, capacity to sense and seize new opportunities in context of particular companies

- case study analysis requires emersion of the researcher in the field, and in the data, with a view to gaining insight and a depth of understanding about the subjectivity and multiplicity of emergence of dynamic capabilities

- case study analysis is rooted in the reality of the emergence of dynamic capabilities (Charmaz, 2000)

- the researcher is able to interpret holistically the active role of entrepreneurs and the experiences that they engage in (Charmaz, 2000)

- the approach allows the researcher to gain a richness of data from a range of perspectives and emphasizes a focus on meaning and interpretive understanding (Daengbuppha, 2006).

The case study is particularly appropriate for the current study because its purpose is as much to explore as to test the theory. As aforementioned generalization is not critical in this study, it is more important that insight and intuition evolve with the theme of the description of the study.

The researcher aimed to conduct a fine-grained investigation of the case-study companies in order to gain deep context-dependent knowledge of the phenomenon of dynamic capabilities. According to Campbell (1975), this is exactly the main advantage of the case study in that it can 'close in' on real-life situations and test views directly in relation to phenomena as they unfold in practice.

According to Georg and Bennett (2005), case studies are valuable at all stages of the theory-building process, but most valuable at the stage where the least value is generally attached to them: the stage at which candidate theories are tested. Due to the fact that the literature review allowed for the drawing up of the research propositions, the aim of the current study is firstly to test these propositions, and secondly to elaborate upon the phenomena stated in the propositions.

According to Denzin & Lincoln (2011), case studies are especially well-suited for theory development because they tackle the following tasks in the research process better than other methods:

- process tracing that links causes and outcomes
- detailed exploration of hypothesized causal explanations
- development and testing of historical explanations
- understanding the sensitivity of concepts to context

As the objective of the current study is to extend the theory rather than to formulate it, and based on the aforementioned arguments, the researcher considers that the case-study methodology is relevant for the purposes of the study.

Another reason for choosing the case study methodology is its ability to deal with a variety of evidence – documents, artifacts, interviews, and observations (Yin, 2009). All these methods are utilized in the current study.

Although the theoretical propositions were defined in the literature review, the case study will allow the expanding of theories and test whether the theoretical propositions are applicable in practice to middle-sized shipbuilding companies. Despite the criticism that the case study cannot provide reliable information about the broader class, it will nevertheless provide a detailed examination of the individual examples from the research propositions (Denzin & Lincoln, 2011).

Peattie (2001) claims that the case study is more useful for the practitioner and more interesting for social theory than either factual 'findings' or the high-level generalizations of theory. Due to the fact that this study has a very strong inclination towards practice rather than theory, the researcher specifically aims to ensure that the findings are valid for the European shipbuilding industry and provide concrete suggestions about how to develop dynamic capabilities in stable environments.

To summarise, the researcher undertakes the case study with a view to obtaining an insight into how the case study companies developed their dynamic capabilities and whether this led

to superior performance. Due to the fact that the literature does not provide a straightforward answer as to how dynamic capabilities evolve at SMEs in a low velocity industry such as the shipbuilding industry, by conducting in-depth interviews, observations and focus groups, the researcher aims to obtain a deep knowledge about these processes. The case study also allows the researcher to minimise any bias in the data by interviewing a number of people from the same company and from different managerial levels. As the number of small and medium-sized companies in the shipbuilding industry which purposely developed their dynamic capabilities over a long period of time and remained successful, that is to say, outperformed their competitors, is very limited, the case study seems to be the most appropriate methodology to serve the purpose of this study.

3.3.1. Validity

The only concern about the appropriateness of a qualitative study is its validity.

Validity involves assessing the extent to which the conclusions that have been drawn are logical, believable, justified by the data and patterns identified and supportable even when there are alternative explanations (Hair et al., 2007).

Quantitative studies supporters usually question the validity of qualitative researches. According to Bryman & Bell (2003), the issue of measurement validity by definition seems to carry connotations of measurement. Since measurement is not a major preoccupation among qualitative researches, the issue of validity would seem to have little bearing on such studies (Bryman & Bell, 2003).

The case study research method, which is chosen for the current study, focuses on contemporary events. As recent critics of Jim Collins work stated, 'a study of decades' worth of solid data' might still be less robust if not to take into account deep analyses of the most recent events (Collins, 1996). Similarly, Beveridge (1951) argues that more discoveries stem from intense observation of individual cases than from statistics applied to large groups.

According to Denzin & Lincoln (2011) there are three types of case study tests: construct validity, internal validity and external validity.

Construct validity establishes appropriate operational parameters for theoretical concepts being researched. Internal validity refers to the establishment of cause-and-effect relationships, while the emphasis on constructing an internally valid research process in case study research lies in establishing phenomena in a credible way. Finally, external validity is concerned with the extrapolation of particular research findings beyond the immediate form of inquiry to the general (Riege, 2003). This means that the finding of the current study can be transferred to other industries as the construction industry, the management consulting.

In order to increase the construct validity, the researcher used multiple sources of evidence (Yin, 2009). First of all, different management levels (top and middle managers) were interviewed. Then, the results of the interviews were compared with other sources, such as interviews with clients and cooperation partners. Finally, the outcome of the interviews was also compared with observations and different documents (manuals, articles, financial reports).

To increase the internal validity, the author did within-case analysis of each case company and then matched the patterns though cross-case analysis.

In order to enhance the external validity of the study, data collection and data analyses in developing connections between categories and sub-categories were mixed. The researcher returns to a data collection stage if data analysis produces ambiguities and requires additional clarification. The process continues until it reaches closure of the emergent theme. The process ends at the point when improvements to the model are increasingly small and the benefits of further analysis are marginal. This is the stage where theoretical saturation is achieved and internal validity tested (Daengbuppha, 2006). The researcher also focused on an understanding and exploration of constructs by the comparison of initially identified theory and the empirical results of single and multiple case studies, revisiting the literature as and when necessary.

3.3.2. Reliability

In qualitative research, reliability is the degree of consistency in assignment of similar words, phases or other kinds of data to the same pattern of theme by different researchers. Reliability can also mean the degree of consistency that the same researcher assigns similar observations and interpretations at different points in time (Hair et al., 2007).

Reliability also considers the extent to the replicability of research findings (Lee, 2001). This has been problematic because no one can expect to replicate human behaviour exactly. Since there may be many interpretations of what is observed in qualitative research, there is no need for establishing a traditional sense of reliability (Merriam, 1988). Because of this, it is proposed to use the consistency of the results from the data (Lincoln and Guba, 1985). For this, the following sections explicitly indicate how data were collected, how categories were derived and how decisions were made.

To increase the reliability of the study, the researcher used different techniques of triangulations. As recommended by Yin (2009) the researcher used multiple sources of data collection. At the end of each interview the researcher conducted a debriefing of the most important points in order to confirm that they were understood correctly.

The researcher has also created a systematic database of documents, such as audio-records, interview transcripts, interview memos, observation memos and financial reports. The memos were reported in such a way that each memo would contain enough data so that the reader of the memo could draw independent conclusions about the case study (Yin, 2009). The database helped to manage the complex data and to maintain a systematic approach.

For this reason it is understood that other researches should be able to come to the same results using the same material.

3.4. Inclusion criteria

First of all, one of the primary inclusion criteria was sufficient access to the data of the case study companies, whether from interviewing people, reviewing documents or records, or making observations in the 'field' (Yin, 2009).

In order to make decisions on inclusion of companies, their success over time was considered. An assessment of the success was conducted through scanning of financial reports, subjective opinion of the market and their recent successful experience with dynamic capabilities.

As the failure rate of small firms is high, start-ups and companies operating for fewer than three years were excluded from the study. This ensures that the sample companies have grown out of the dynamic turmoil of their early establishment years (Garson, 2009).

The companies have to be independent firms or at least they were independent during the major part of their development, rather than subsidiaries of large corporations. The literature review reveals that substantial differences exist between them.

The companies have to employ more than 10 people. Thus, sole-trader firms are excluded. Lastly, they have to have achieved a substantial growth rate in the last three years and remain profitable.

The criteria for inclusion and exclusion of companies and studies are derived from the research aim, research questions and different assumptions. Companies and studies which do not fit the inclusion criteria were excluded.

The following list is an inclusion criteria summary:

- The selected companies operate in the shipbuilding industry in Europe.
- The selected company has experience with dynamic capabilities or successful experience with radical and rapid organizational change.

- The company has been profitable over time.
- The company is not a start-up, having been founded at least 3 years ago.
- The company has a significant market share or has experienced rapid development, showing significant growth during the last 3 years.
- The company employs more than 10 employees.
- Interviewees/respondents can communicate in English, Estonian, Finnish or Russian.
- The company is independent or was independent during the major part of its development.

For secondary data, the inclusion criteria are:

- Studies are written in English, Estonian, Finnish or Russian
- Studies are published in highly-ranked scholarly or business journals
- Theories are written by academic scholars or business practitioners in the area
- Studies have a deep focus on topics related to research question
- Companies' financial reports
- Industry magazines.

The European shipbuilding industry consists of three company categories: shipyards, subcontractors and product suppliers. In order to have a holistic approach to the whole industry, every selected case study company represents each category. Therefore, the research comprises case-studies from three enterprises: Marioff Corporation Oy (a product supplier), Merima Oy (a subcontractor) and Lloyd Werft Bremerhaven GmbH (a shipyard). The case-study companies were selected for the ability to remain successful over a long time and thrive even in turbulent environments. The industry detailed summary and the selected case-study companies overview is presented in the following chapter.

As one of the focuses of the study is small and medium-sized companies, the major shipbuilding yards were not chosen for the case-study. First of all, they belong to large companies, but as mentioned before, the size of companies mattered. Small and medium-sized companies might use different types of dynamic capabilities to adapt to changing conditions. Secondly, it is more relevant to study how smaller companies related to and dependent upon shipyards are preparing for radical changes.

Although major European shipbuilding yards were not included in this study because of their size, one German shipyard (Lloyd Werft) was nevertheless included as a perfect representation of a successful shipyard, which is considered as best in class (interview with Mr. Peter Fetten, VP of Carnival Corporation, March 2011), and which survived a number of radical and rapid changes during over a period of 150 years. Despite the fact that the company has over 400 employees, the shipyard is considered small or medium-sized at best. This shipyard is representative of the category, because it not only builds ships, but also undertakes conversions and refits of mainly passenger ships, which is actually the main field of activity of the shipyard.

Subcontractors represent the vast majority of all the companies operating in the industry, which is why it was important to have one case from this sector. Merima Oy ideally represents this group of companies, in that they started from a very small company as a minor subcontractor for a shipyard, they have survived over several turbulent periods, successfully adapting to changing conditions and becoming one of the best in the class.

Marioff Corporation Oy was chosen as an example of marine product suppliers. This company has not only successfully competed on the market for a long time, but it has managed to win 100% of the cruise newbuilding market by supplying a high pressure fire extinguishing system.

The process of case-study selection was very straight forward.

Firstly, as previously mentioned, all the companies were divided up according to three categories: shipyards, subcontractors and product suppliers (the classification of the categories is elaborated in the following chapter).

Secondly, as an expert in the field, the author was in a position to compile a list of all companies he knew would potentially meet the inclusion criteria by categories.

Each category comprised a relatively small number of companies (see the table below).

Table 1. A list by industry categories of initially included companies

shipyard	subcontractors	product suppliers
Lloyd Werft (Germany)	Merima (Finland)	Marioff (Finland)
STX Europe / Life Cycle (Finland)	Almaco (Finland/USA)	Eusebi (Italy)
Meyer Werft (Germany)	R&M (Germany)	Alfa Laval (Sweden)
B&W (Germany)	Santa Rosa (Italy)	MariMILS (Finland)
Bergen Group (Norway)	Elevi (Italy)	Wärtsilä (Finland)
Uuskaupungen Työvene (Finland)	MML (Finland)	Navalimpianti (Italy)
Mariotti (Italy)	Europlan (Finland)	MiniMax (Germany)
Baltic Workboat (Estonia)	Nordic Marine (Poland/ USA)	SeaKing (Finland/ Switzerland)
Gibdock (Gibraltar)	Prezioso (France)	Norac (Norway)

Then, one by one the companies were excluded from the list for one reason or another, as some companies refused to participate in the study while others were under a process of reorganisation (liquidation or acquisition) and some companies did not demonstrate a superior performance, which was identified only after preliminary study.

Under a superior performance the author deems a company's profitability, revenue or market share which significantly (in times) exceed the medium in the industry.

Companies which might potentially be included in the selection but lacked the knowledge of foreign languages were excluded.

It was decided to have a multiple and namely a three-case design, as it appeared logical to have one company from each category. Due to time constraints, it was impossible to include more companies in the study. Thus, only one company was selected from each industry category for the current case study.

It was intended that case study companies should be illustrative (Yin, 2009), as the author was looking for outliers (companies with superior performance), those companies which were substantially more successful than others over a long period of time.

Actually, after having a closer look at the initially selected companies, Marioff was chosen first and foremost for its industry-wide renown and for its unprecedented success and even position of virtual monopoly, which they enjoyed over a long period of time.

In the category of subcontractors, a number of illustrative companies were selected for the case study. The company Merima was chosen initially for their willingness to participate in the study and accessibility of study materials, such as financial documents and articles, as well as for their geographical proximity.

Lloyd Werft was chosen through the process of elimination. STX Europe / Life Cycle were excluded due to the fact that they were not an independent company, but rather part of a shipbuilding yard. Meyer Werft was excluded due to their size. B&W, Bergen Group and Mariotti were assessed as not very relevant for the study as their success in transformation and adaptation was less illustrative than that of Lloyd Werft. Uusikaupingen Työvene did not demonstrate a significant market share and remained a marginal player. Baltic Workboat was the second strongest candidate for inclusion as a case-study company, but it was decided in favour of Lloyd Werft on the basis of their long history. Gibdock were very slow in their responses and although the researcher even had a face to face meeting with the top management of this company, it was considered that the practical aspects involved in undertaking a case-study might be too complicated because of the pace of their response time and their geographical remoteness.

The researcher was particularly interested in companies which could be characterised as positive outliers, meaning that they were substantially more successful than average financially in their industry segment. At the same time, the companies had experience with

rapid and radical changes. In terms if experience of change, it was not important whether the companies met the environmental changes more or less successfully but rather to study how the companies reacted to these changes and whether they were prepared for them. As the case study of Lloyd Werft will demonstrate, the case study companies were not always very successful in meeting these changes.

3.5. Methods of data collection

In the backdrop of the research framework, a mixed method approach was chosen, comprising a focused literature review, documents, observations, personal in-depth interviews and personal semi structured interviews. The data collection and further analyses are guided by previously developed research propositions.

The first step in the data collection was to develop a comprehensive collection of publicly accessible sources of evidence. Extensive archival data on the case study companies was collected. Most of this data came from the business press, company books and companies' web-sites. Based on this data, the overview of the companies and the major events timeline were determined.

As the second step, a preliminary, concise questionnaire for in-depth interviews was designed based on information gleaned from the literature review and from consultation with other practising managers.

Initially, the literature was reviewed to identify items that might be adopted in the research. Then, the scales and items were discussed in in-depth interviews with the CEOs and based on these interviews the conceptual framework was reconstructed.

Thus, the second data collection phase begins with three in-depth interviews with chief executives from the case-study companies. The interviews were semi-structured. Consistent with the narrative approach (Miles & Huberman, 1994), follow-up questions were used to explore the process of emergence of dynamic capabilities more in detail, especially if the interviewees digressed from the subject.

Starting from their personal stories and careers, the interviews covered the following questions:

- have you noticed any changes in the shipbuilding business environment and what do you think those were about?
- Do you think you need to have any change in your organization as a result of those changes in the context?
- Can you describe timing, duration, depth and scope of those changes?

The interviews took place over one year between December 2010 and December 2011. Interviews of all three case-study companies were done simultaneously due to time constraints of the interviewees and the traveling schedule of the researcher.

The following table presents the time-frame of the conducted interviews:

Table 2. A list of interviewees

Marioff		Merima		Lloyd Werft	
G.Sundholm	26.05.2011	M.Mäkiranta, L.Haavisto	02.12.2010	W.Lücken	01.02.2011
top manager A	07.06.2011	middle manager A	09.02.2011	top manager B	09.03.2011
top manager B	14.06.2011	middle manager B	09.02.2011	top manager C	09.03.2011
top manager C	15.06.2011	middle manager C	25.04.2011	top manager D	31.03.2011
middle manager D	13.09.2011	middle manager D	15.06.2011	middle manager E	02.11.2011
middle manager G	21.09.2011	client A	20.06.2011		
a former top manager F	04.10.2011	client B	20.06.2011		
middle manager H	10.11.2011				
STX ex-purchaser	15.07.2011				
a local distributor in Russia	22.11.2011				

The relatively large intervals between the interviews were also caused by the fact that the data collection and data analysis were done simultaneously. The researcher aimed to analyse

the data before proceeding with the next interview. This provided a deeper understanding of the processes in the companies.

As the researcher had a good knowledge of the organizational structure of the case study companies, it was not hard to choose the right people for the interviews. These comprised first and foremost the key decision makers on the top management level and those middle managers who were mentioned by the top managers during their interviews or noticed by the researcher during observations on site. The researcher has also selected those people who possessed a lot of information about their companies and played an important role in their companies' development. For instance, one former top manager of Marioff was selected because over a long period of time he directly reported to the founder of Marioff and worked for the company for a very long time, participating in many critical decision-making processes.

In the case of Marioff and Merima, the researcher also had a chance to interview their clients which afforded a very good insight into some of the processes which were not mentioned by the case-study companies' employees. The interviewed clients were contact persons for the case-study companies over a considerable period of time: in the case of Merima, they were their clients for two decades, which is why it was considered that they possessed very valuable information about the case study companies. The interviewed clients also participated in many case study companies' experiments and often even encouraged the case study companies to conduct those experiments.

In selecting the interviewees, it was also considered how relevant they were to the research propositions. The top management team and CEOs (in the case of Marioff, their founder) were particularly relevant as they were the visionaries of the companies and one of the first objectives of the researcher was to find out whether the development of dynamic capabilities was a deliberate process or mainly a product of an ad-hoc decision making processes.

As proposition 2 is concerned with experiments and middle management was deeply involved in all experiments conducted by the companies, it was important to include them in the interviews. Interviews with middle managers were also very relevant for proposition 3,

where the researcher assumed that the development of dynamic capabilities depends on the level of entrepreneurship on every managerial level.

The interviews were topic-based and questions were asked on specific topics and the researcher was very selective in his questioning. The biggest concern was not to direct the interviewees into expected answers and not to give them any hints.

The initial interviews were conducted not to develop a theoretical framework, but rather to increase familiarity with the research settings. This method allows an initial exploration of the emergence of dynamic capabilities in relatively low-velocity environments.

Based on the results of these in-depth interviews, a questionnaire for semi-structured interviews was designed. Open-ended questions were mainly used in order to provoke a discussion. Face-to-face interviews were selected because academic researchers and owner-managers are culturally different and close contact might be essential setting. The face-to-face interviews were considered also as the most appropriate because one of the major weakness of the contemporary knowledge on business owners running the smaller enterprise is a relative low level of understanding of process issues (Blackburn & Stokes, 2009).

Here are some examples of the questions asked during the interviews:

- Is there any pro-active / existing internal policy to prepare your organization for changes?
- Do you believe that you are able to train your organization to anticipate and adapt to change?
- Do you believe that it is necessary to anticipate possible changes even in a stable environment?
- Do you believe that this level of preparedness in a stable environment can lead to superior performance?
- Do you have any contingency plans?
- How do you adapt to rapid and radical changes?
- If you foresee that there might be some changes in the external environment, what do you do to prepare for these upcoming changes?

- What is more important: to exploit existing capabilities or to explore new capabilities?
- How do you unlearn old routines and learn new routines?
- What learning processes do you have in your organization?
- How do you transfer knowledge inside the organization?
- How do you promote organizational learning processes in order to capture external knowledge?
- Do you develop capabilities for identifying new opportunities? If yes, how?
- Do you develop capabilities for seizing new opportunities? If yes, how?
- How does your organizational structure enhance the development of these capabilities?
- How do these capabilities of sensing and seizing new opportunities lead to superior performance?
- How can these capabilities of sensing and seizing new opportunities create market changes?
- Are you more focused on exercising 'best practices' or on building 'new practices'?
- Do you collaborate with other companies with the purpose of knowledge transfer? If yes, what is the size of your cooperation partners? What are the processes of knowledge transfer?
- How do innovative ideas occur in your organization?
- Do you have extensive, dedicated R&D activities? If not, what substitutes do you have for them?
- How might internationalization affect your adaptive capabilities?
- How do you develop an entrepreneurial spirit in your organization?
- Is it important to have entrepreneurial management on every organizational level? If yes, how do you achieve it?

Thus, the third data collection phase consisted of nineteen semi-structured interviews. Interviews, as a method of data collection, were chosen because they offer a possibility to combine structure with flexibility. This gives a chance to allow responses to be fully probed and explored and to allow the researcher to be responsive to relevant issues raised spontaneously by the interviewee. Interviews also permit full exploration of all the factors

that underpin interviewees' answers: reasons, feelings, opinions and beliefs (Ritchie & Lewis, 2003). The interviews were conducted with key decision makers from the case-study companies including top and middle management team members.

The researcher preferred informal interviews, because people invariably tend to describe their practices and ideas in circumstances that are much closer to 'naturally occurring' than are the circumstances in ordinary formal and structured research interviews (Peräkylä & Ruusuvuori, 2011).

The meetings have been prearranged at interviewees' offices or at international trade fairs, where people are used to being more talkative. First questions were designed in such a way as to encourage interviewees to talk freely when answering the questions. A range of probes and other techniques were applied to achieve depth of answers in terms of penetration, exploration and explanation (Ritchie & Lewis, 2003). Interviewees were also invited to put forward ideas and suggestions on the topic and to propose solutions for problems raised during the interviews (Ritchie & Lewis, 2003).

In the beginning, interviews were focused on the circumstances and reasons for the changes in order to learn more about the changes the case study companies experienced. Then, the focus shifted to the processes of emergence of dynamic capabilities. One of the main objectives was to understand whether the dynamic capabilities were developed deliberately or accidentally.

Interviews commonly lasted from one to two hours and some of them were recorded. The interviews with the CEOs and some of the top managers were recorded with their permission, but most of the middle managers were very reluctant to be recorded, so rather than risk prejudicing the quality and content of the information gleaned from the interviews, their wishes were respected. In any case, all interviewees, except the founders of Merima and Marioff and former CEO of Lloyd Werft, asked for confidentiality.

The notes and summary of the interviews which were not recorded were written up during the interviews and/or soon after the interviews were finished. The recorded interviews were transcribed. The most essential interviews, particularly with the CEOs and founders, were transcribed manually by the researcher himself, as the intonation and any pauses by the

interviewees were considered as very important ingredients. To confirm the accuracy of the researcher's interpretations, a few follow-up emails and telephone calls were made.

Conducting qualitative data collection, the data was triangulated by different sources of information. First of all, not only were employees interviewed, but also some clients and collaboration partners of the case-study companies. Additionally, historical accounts, public records and news articles have been reviewed, once again upon completion of interviews.

By conducting the data triangulation, the aim was to address the potential problems of construct validity because a multiple source of evidence essentially provides multiple measures of the same phenomenon (Yin, 2009).

One substantial part of data collection and data triangulation is field observations. During the data collection phase, the researcher visited the case-study companies not only with the purpose of conducting interviews, but also to make field observations.

During field observations, the researcher participated in a strategic planning meeting and in several project follow-up meetings at Marioff. The researcher was also invited to take part in coffee-breaks at Marioff and Merima. This allows the observer to obtain a much deeper understanding of organizational culture and actual relationships among the employees. By doing field observations, the researcher also aimed to find different sources of evidence in order to support the facts found during interviews.

Accordingly, the following graph summarizes the data collection process used in the current study.

Figure 3. A process of facts and evidence collection

The above stated process is based on the principles of evidence collection suggested by Yin (2009), where the researcher used different sources of evidence: documentation, archive records, interviews, direct observations; and each source of evidence was associated with an array of data or evidence (Yin, 2009).

A single case study for every company has been developed in order to analyse the data. The cross case-study analysis was followed in order to detect patterns and to draw conclusions.

3.6. Methods of data analysis

The analysis of case study evidence is one of the least developed and most difficult aspects of carrying out case studies (Yin, 2009). The task of data analysis is very comprehensive and needs to have a clear structure in order not to sink into the vast quantity of information.

There are four general strategies to analyse multiple case studies (Yin, 2009). The first and most preferred strategy is to follow the theoretical propositions. In this case, the original objectives and design of the study presumably are based on such propositions, which in turn reflect a set of research questions. The propositions shape the data collection methods and therefore help to establish priorities for the relevant analytic strategies. The propositions also help to organise the entire case study and to define alternative explanations to be examined. Theoretical propositions stemming from 'how' and 'why' questions can be useful in guiding case study analysis (Yin, 2009).

The second case study analysis strategy is to develop a case description. This general analytic alstrategy is to develop a descriptive framework for organising the case study. The strategy relies on theoretical propositions but serves as an alternative. This strategy is the most appropriate when the purpose of a case study is a descriptive one (Yin, 2009).

The third strategy of multiple case study data analysis is to use both qualitative and quantitative data. This strategy is appropriate when a study includes substantial amounts of quantitative data, and if these data are subjected to statistical analyses at the same time that qualitative data nevertheless remain central to the entire case study (Yin, 2009).

The forth strategy of data analysis is to examine rival explanations. This strategy seeks to define and test rival explanations and generally works with all of the previous three strategies: initial theoretical propositions might have included rival hypotheses; the constructing perspectives of participants may produce rival descriptive frameworks; and data from comparison groups may cover rival conditions to be examined as part of using quantitative and qualitative data (Yin, 2009).

For the purposes of this study, the researcher has chosen the first strategy of the data analysis. Although, as previously mentioned, the dynamic capability paradigm is relatively new one, the model provides a relatively good understanding of the processes in the development of dynamic capabilities in high-velocity environments and allows for the elaboration of propositions which would guide the research in order to extend the concept and to study processes of emergence of dynamic capabilities in low-velocity environments. This strategy in conjunction with multiple cases will help to facilitate further analysis of the data in many divergent ways and will guide the search for cross-case patterns. The technique of each case data analysis broadly followed the recommendations of Eisenhardt (1989).

The data analysis started with a within-case analysis of each company. The idea was to become familiar with each case as a stand-alone entity. In addition, it was assumed that this procedure would help to become familiar with each case which, in turn, accelerates the cross-case comparison. The within-case study analysis allows the dynamic capabilities to emerge before the findings are transferred during the cross-case analysis (Eisenhardt, 1989). Associative analysis was conducted to find links and directional connections between two or more phenomena (Ritchie et al., 2003).

During the cross-case analysis, similarities and differences in the processes of the emergence of dynamic capabilities were looked for. By applying the within- and cross-case analysis, the arguments and evidence were analysed in accordance with the initial research propositions, but also developed into new themes. In other words, since the study was guided by the disaggregation of the dynamic capabilities, some deviation in the specific processes in the emergence of the dynamic capabilities was allowed.

As the next stage of the data analysis, the sequence of the research propositions was reconsidered and the study was restructured, allocating the most important elements of the emergence of the dynamic capabilities at the beginning of the analyses. Although the literature review helped to conceptually define the processes of the emergence of the dynamic capabilities in a turbulent environment and to develop the understanding of their nature of the dynamic capabilities in a stable environment, the initial research propositions were used mainly as a guide to the study and their sequence were slightly reconsidered during the conducting of the data analysis.

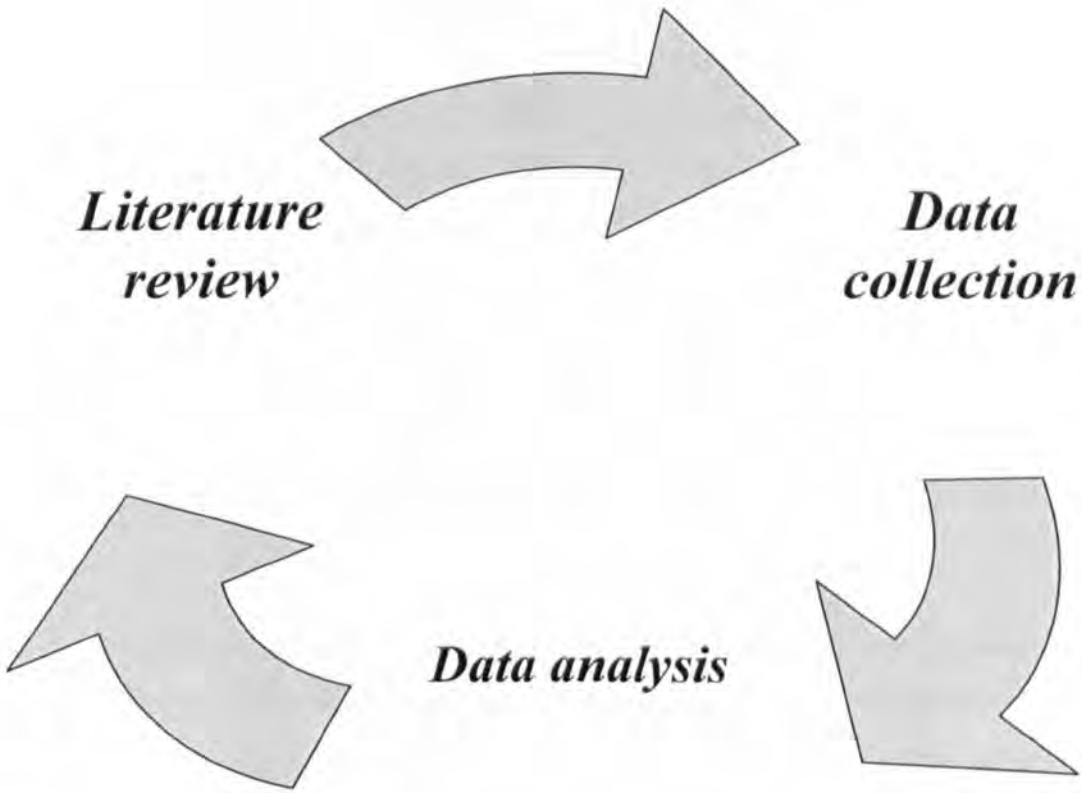

Figure 4. Data analysis circle.

The above demonstrated process was a guide to the data analysis, which was followed during the whole route of the research.

Firstly, for the purposes of understanding and analysing the processes of emergence of dynamic capabilities in companies which have experience of transition from relatively low velocity to moderate velocity environments, relevant documents were mapped and analysed.

Secondly, both existing documents and in-depth interviews were used to identify key concepts and processes of emergence of dynamic capabilities in stable environments. The intention was to record the interviews and transcribe them at a later date or to make summaries promptly after interviews. Then, the data was analysed, preliminary conclusions drawn and questionnaires for next semi-structured interviews designed. The same process of data collection and analysis was continued with a planned nineteen semi-structured interviews approximately. The data was analysed shortly after an interview took place and new interviews were continued until they do not provide any essentially new findings.

The case study method assumed re-conceptualization and extension of the theory (Burawoy, 1991). For this reason, the data analysis method went through revision of the literature and collection many times over. The first circle comprised the literature review, data collection and data analysis. Data analysis pointed to relevant concepts and theories in the literature, while the literature simultaneously provided conceptual frameworks to aid in the interpretation of the data (Danneels, 2010).

As the first confrontation between data analysis and literature review appeared, the second round of the literature review started. The aim was to find out whether the research did not find evidence in the literature which was found in the data analysis. Then, data collection was continued to triangulate earlier collected data and in order to find any ambiguities in the data analysis.

For example, the literature suggested that in order to develop dynamic capabilities successfully, entrepreneurship should be developed at all organization levels. The first interviews with the top executives revealed that CEOs and founders of the case-study companies considered the importance of their own entrepreneurial skills to be much greater than the general entrepreneurship of their organizations. Then, it was decided to review once again the literature with a focused search on the role of the entrepreneurship in order to develop dynamic capabilities at middle management level. As even more studies highlighting the importance of the entrepreneurship at middle management level were found (e.g. Burgelman & Grove 2007; Taylor & Helfat, 2009), it was decided to conduct a few more interviews among middle managers in order to understand better middle managers' perception of their role in the development of dynamic capabilities. As the findings of the data analysis of the interviews with middle managers were in most cases inconsistent with the findings of the data analysis of the interviews with top managers, it was decided to follow-up some interviews with top executives and to triangulate the data by interviews with some other members of the top management teams.

Then analyzing transcripts, documents, and other documents (articles, web-sites), memos were generated. Memos are brief analytical notes that contain insights that the researcher obtains as the analysis is preceded with (Strauss, 1998). The memos were continuously matched and contrasted to refine theoretical understanding (McCracken, 1988), and the

emergent theoretical interpretations contained in the memos were systematically compared with the evidence to assess how well or how poorly they fit with the case data (Eisenhardt, 1989). This iterative process of constantly comparing emergent theory and data led to additional, more qualified and refined memos. As mentioned before in the data collection section, the theoretical arguments found in the literature review were followed up during the data collection stage and questions were formulated, based on the themes defined in the research framework.

At the data analysis stage, the same specific themes were followed up on with the aim of identifying as within case, as cross-case patterns. This data analysis was conducted during the data collection stage which was considered especially prudent when interviewees refused to be recorded, the researcher trying to find patterns and make relevant notes.

The researcher assumed that the interviewees were honest and careful, but it was also considered possible or likely that over the years they could have distorted the image of what happened during the start-up process or during the particular moments under consideration by the interviewer (Guido & Pierluigi, 2010). This problem was remedied through triangulation, such as information from other interviews and written documentation.

As previously mentioned, in order to organize and analyze the data, the researcher has utilized the first strategy offered by Yin (2009) relying on the research propositions. The original objectives and design of the case study is based on the research propositions defined in the literature review, which in turn reflected a set of research questions (Yin, 2009). Following this method, the researcher defined key themes for each research proposition. The key themes were the logical outcome of the literature review which explained the research propositions more clearly and precisely. After the key themes were defined, the researcher created a case study database which consisted of different sources of evidence and started to identify in the transcripts evidence that addressed the themes. An example of the themes and the evidence is presented in the following table:

Table 3. An example of the themes and the evidence

propositions	themes	evidence
Proposition 1: ***The potential gain from dynamic capabilities is significant, even in stable environments***	continuous exploration of new markets; continuous exploration of new ideas; stable times; change	It's very important for small and medium-sized companies to have continuous product development; During stable times most of the companies are getting flabby and reluctant to change. This is a unique possibility to come up with innovative technology and to create market's demand before rivals wake up to respond; It's too late to try to learn how to change when a need to change is already there. When the pace of change is terrific, only those companies which learn how to be agile in good time before' can survive.
Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management***	entrepreneurial top management; entrepreneurial middle management; best people; key team	A manager (top manager, CEO) should be an entrepreneur; If we did not have entrepreneurial top management, innovative ideas of our front line employees would never be implemented, which would definitely cause a lot of frustration.
Proposition 3: ***Low-cost experimentations trigger development of dynamic capabilities***	experiments; probes; trials	The best way to manage this risk is to have a low-cost trial; This kind of searches for new business areas is not for faint-hearted managers, but these trials ultimately trigger development. Of course, if new experiments end up with losses, it requires a fine-grained investigation, but conclusions can significantly solidify company's capabilities
Proposition 4: ***A different sets of dynamic capabilities are needed for SMEs compared to MNEs***	internationalization; informal communication;	At Marioff we always discussed new ideas. Often we discussed new ideas just having coffee together. It is not necessary to have any formal meetings for that. If someone had some good ideas, he or she was always very welcome to discuss them. As I said before many of my employees had been working for me already for a long time - they knew me well and they did not have any problems to pop up in my office if they had something smart to say; Geographical diversification is very important, you become less dependent . Having a global presence puts you on the same level as large companies

Thus, the themes-related analysis has substituted the coding method, because the coding method does not reflect with enough accuracy the importance of intonation and the way the facts were presented. The tentative conclusions were based on the weight of the evidence.

In this regard, the memos played a key role in identifying the key ideas presented in the interviews. During analysis of transcripts and memos, the researcher first of all aimed to identify similarities with the research framework in order to find evidence supporting or challenging the research propositions. The key arguments supporting and confronting the research propositions were gathered in the tables and then restructured in accordance with the

research propositions (these tables are presented in the case study analyses' sections as a summary of evidence).

Conclusions on the research propositions were drawn based on the following principles:

A research proposition is considered to be fully-supported if all or almost all interviewees articulated in a clear manner the importance of a theme and the supporting evidence was also found in other sources of evidence.

A research proposition is considered to be partly-supported if some interviewees provided the clear evidence of the importance of a theme but it was supported by other interviews or/and other sources of evidence. An example of such a partly-supported theme is the importance of the entrepreneurial middle management in the development of dynamic capabilities, where founders of Merima and Marioff did not acknowledge the importance of the middle management, but the researcher found other evidence in the form of general observations, interviews with middle management and clients which supported the idea that middle management plays a vital role in the development of dynamic capabilities, particularly when a company transfers from a small to a medium-sized one, and especially to a large enterprise.

A research proposition is considered to be not supported if all or almost all interviewees articulated in a clear manner the irrelevance of a theme and the supporting evidence was not found in other sources of evidence either.

The results of each case were compared in the cross-case analysis and with the literature in the method described by Eisenhardt (1989) as 'enfolding literature'. This method of 'bracketing' knowledge, identifying and developing observations, and then moving the model over the interpretation like a template, avoids invalidity (Morse & Richards, 2002).

Finally, the cross-case search for patterns was conducted and results were gathered in accordance with the research propositions in a separate table.

There were some ethical issues which were considered conducting the study. In order to protect confidentiality, only very limited personal details were collected and these personal details were kept separately from the data collected. The personal profiles or details of the interviewees are not used in the analysis and are not presented in reports of the study.

3.7. Alternative approach

It is always worth taking different philosophical assumptions to test a theory. The literature on the topic suggests that conclusions can vary depending on what position has been taken: a position of positivism or interpretivism (Howard-Snyder, 2005).

That is why it might be useful to test the results and build up theory by taking positivistic assumptions. In practice, this means doing a triangulation by conducting in addition to a qualitative study a quantitative study and to compare the findings and conclusions.

Although, as stated above, the literature on the subject does not provide a large enough number of studies for a quantitative approach to test the expected findings, a quantitative study might embrace other traditional, stable industries, as construction industry, steel industry or oil and gas industry. This alternative quantitative study will not provide the same depth of understanding of the processes of the emergence of dynamic capabilities, but it can be used to add validity to the study.

Another alternative qualitative approach could be a longitudinal study. Although the case study companies have been in business for over twenty years, the study is focused on stable environments, what means that only a limited number of rapid and radical changes have occurred. Therefore, in order to test how companies develop their dynamic capabilities and whether these dynamic capabilities can be associated with sustainable competitive advantages, it might be prudent to study this over a much longer period.

3.8. Conclusions

The current study has an interpretive approach. One of the main arguments for taking an interpretive approach is that it can enable one to acquire in-depth knowledge of experience of companies which could successfully develop their dynamic capabilities in low velocity environments and successfully adapt to rapidly and radically changes.

As the literature review reveals, the emergence of dynamic capabilities in companies which experience transition from relatively low-velocity to moderate or high velocity environments is poorly studied and the theory of dynamic capabilities lacks understanding of these processes. That is why it was proposed to employ an exploratory approach to the study using the case study methods. The case study approach provides a deep understanding of a phenomenon and definitely is a very strong method not only for exploration and theory testing, but also for the theory development.

The case study method offers an opportunity to explain, describe, illustrate, and explore specific aspects of the emergence of dynamic capabilities in relatively low velocity environments based on case study companies and taking into account specific their context.

The case study comprised the following main stages:

- to conduct in-depth literature review to get knowledge of existing paradigms;
- to design research propositions basing on the literature review;
- to conduct interviews (in-depth and semi-structured personal interviews) in order to collect data like what experienced managers say about the processes of emergences of dynamic capabilities in stable environments in their organizations.

The study has two main phases of data collection. The first data collection phase consists of three in-depth interviews with chief executives of firms chosen for their known, recent experience with dynamic capabilities and which represent the shipbuilding industry in

Europe. These interviews were conducted to develop the theoretical framework and to increase familiarity with the research settings.

The second data collection phase consists of nineteen semi-structured interviews. The prearranged interviews were conducted at interviewees' offices and at international trade fairs, where people are used to being more talkative.

For most of the data, the data collection and analysis were conducted at the same time. This simultaneously increases the quality of data to be collected and also suggests the direction of what data are needed (Lee, 2001). The received findings were compered with the research propositions.

Then it was translated what is said in the interviews into an explicit recommendations of building dynamic capabilities, using interpretative categories and labels that are meaningful to the key informants. The model was transferred so that it has been built back into the mental frame and working environment of the organization, so that it may be used to improve the processes of development of dynamic capabilities in low-velocity environments.

Throughout the process, a challenge was to interpret the data to develop an understanding of the meaning of the concepts, to identify the relationships and interactions between them (Galal, 2001). However, by using the conditional relationship guide, one of them became the core category whilst the rest had interrelationships that explained the phenomenon of the emergence of dynamic capabilities in relatively low velocity industries (Daenbuhhpa et al., 2006). When all the data were categorised to core themes, the characteristics of the data were to pull together, mapped and interpreted as a whole (Bryman & Burgess, 1994).

Chapter 4. Overview of the industry and case-study companies

4.1. European shipbuilding industry overview

The purpose of this section is to provide general knowledge of the European shipbuilding industry and to deliver an overview of the nature, speed, and consequence of change in the industry over time. This overview also aims to deliver insights into key drivers of innovation and competitiveness of the European shipbuilding industry.

A century ago shipbuilding was dominated by Europe, having a world market share of some 80% at the beginning of the 20th century. In the 1950s this position was gradually taken over by Japan, mainly due to a rapid growth of the Japanese economy and a coordinated shipping and shipbuilding program. At the early 1970s Japan and Europe still dominated the world market with a combined share of some 90% (Molemaker, 2009).

In the early 1970s South Korea entered the stage. The country offered lower wages than Japan or Europe and chose to position shipbuilding as a strategic industry. Just as Japan did before, a carefully planned industrial program was successfully initiated, leading to a world market share of 25% by the mid-1990s and a world first position as of 2005. Despite having shipyards since the 1940s, China has only become a dominant player during the last 10 years. The country's economic boom together with the strategic choice to develop heavy industry activities has led to a strong increase in global market share (Molemaker, 2009).

The role of marine equipment manufacturers has become more important over time. Originally, most of the shipbuilding work was carried out at the shipyards themselves. With technological advance, the role of marine equipment industry – as the supply industry to the shipyards - has increased dramatically. While in the 1970s most of the shipbuilding work was carried out at the shipyards themselves, nowadays the share of marine equipment is assessed at 50%-70% of the product value, and can be 70-80% in the more specialized segments. Close ties between equipment suppliers and shipyards therefore exist (Molemaker, 2009).

Here, by 'shipbuilding industry' it is considered all shipyards, turn-key contractors and major components suppliers which are involved in construction, conversion or refit of Ferry, Cruise or RoRo (car-carrying ferries) vessels, gas and oil tankers, container vessels and other bulk carriers'. Shipbuilding yards are excluded on purpose, because this part of the industry has already almost totally shifted from Europe to the Far-East, but the focus of this study is mainly the European market. Ferry and cruise vessels building segment offers the highest level of interest, because of their significantly big volume. The order book value of cruise and ferry vessels exceeds 29 500 mln EUR: 25 000 mln EUR – cruise vessels, 4 500 mln EUR - ferries (ShipPax, 2011) . Based on cruise vessels orders on January 1, 2011, 25 cruise vessels should be constructed during 2011 – 2014. There are from 2 000 to 7 000 people involved in the construction of one cruise vessel (ShipPax, 2011). Thus, this business field is significantly large.

European shipyards, particularly those in Finland, Italy and Germany, have focused on commercial and high-tech civil ship construction including ferries, research vessels, large cruise ships and medium-sized naval vessels. Commercial shipbuilding primarily occurs in Asia; Korean shipyards constitute approximately 35 percent of the market, Japanese shipyards approximately 30 percent, and Chinese shipyards approximately 12 percent. Cruise ships are typically built in European shipyards.

For almost two decades, the major shipyards engaged in cruise ship construction have been STX Europe located in Finland (Turku and Rauma) and France (Saint Nazaire), Meyer Werft located in Germany (Papenbourg) and Fincantieri located in Italy (Trieste, Monfalcone, Margera, Genoa, Ancona and Palermo). Together, these shipyards have had 90% of the cruise ships building market for much of the nineties, and this has even increased since then.

According to ShipPax market statistics cruise vessels are normally constructed in Europe. During 2004-2010 all cruise vessels were built in Europe. The market share representing Asian and US yards has been minor throughout the industry. Although Asian shipyards have kept a low profile, they are starting to consider taking on more orders. The South-Korean shipyard STX's acquisition of a 100% stake in one of the biggest European shipyard Aker Yards can be viewed as a real potential threat and could signal the beginning of the cruise shipbuilding industry shifting from Europe to the Far-East. It is a clear sign that Asian yards

are starting to consider returning to the more sophisticated building of passenger ships, as they used to do a decade ago.

In 2011, the Japanese shipyard Mitsubishi Heavy Industries (MHI) won two shipbuilding contracts from Carnival Corporation, for the construction of two large-sized cruise ships for Carnival's AIDA Cruises brand. Delivery of the two ships is scheduled for spring 2015 and spring 2016 (http://www.mhi.co.jp/en/news/story/1111021467.html, accessed 15.11.2011). Thus, it is another sign for a geographical shift of cruise shipbuilding industry from Europe to Asia.

In 2010, the European shipbuilding industry held approximately 20% of the world shipbuilding capacity (ShipPax, 2010). Shipyards provide more than 100,000 high qualification jobs through direct employment and generate at least three times as many in the marine equipment and service industries in Europe. The annual turnover of shipyards in 2010 was 14.4 billion € in merchant shipbuilding and 2.1 billion € in ship repairing. Exports (out of Europe) accounts for roughly 70% of the total turnover (ShipPax, 2010).

Shipbuilding is a highly cyclical industry. Even before the economic crisis 2008-2010 global shipbuilding industry was entering its next down cycle driven by the strong upsurge in demand in the last years and the resulting fast decrease in capacity expansion worldwide. This has been further aggravated by the economic and financial crisis (Molemaker, 2009).

Despite the cyclicity, the shipbuilding industry still is considered as a relatively stable industry. Duration of shipbuilding projects vary from one to three years. Usually shipyards have from one to three orders in their pipeline. That's why the pace of change is also relatively slow.

Although European yards invest on average approx. 10% of their turnover on research, development and innovation (ShipPax, 2010), shipbuilding technology does not change too often. The main components to be installed are determined for several years. Very often cruise shipping companies order a series of ships at once or if they order only one ship, than there is almost always an option for another one or two ships to be constructed under the same conditions. As in the above-mentioned AIDA new cruise ships, ordered in 2011 and to be delivered by MHI, in 2016 the technologies will be at least five years old.

The slow pace of change is also caused by relatively high fixed costs like docking and crane facilities, and extensive personnel.

In order to share risks, decrease fixed costs and become more flexible, shipyards implement pro-active outsourcing strategies, which can be considered as their attempt to develop dynamic capabilities. They developed a network of highly specialized small and medium-sized companies, which have become one of the competitive advantages of the European shipbuilding industry. By doing this, shipyards tried to obtain an advantage through the innovating and entrepreneurial approach of SMEs. Typically, 60 to 75% of the value of a new ship is goods and services provided by marine equipment and service industries (ShipPax, 2010). The assembly work of the ship is also outsourced to a number of so-called 'turn-key' suppliers, who provide design, material procurement, installation and project management services. This is another reason why the main focus of the current study is on small and medium-sized companies.

Although the shipbuilding industry is considered as stable, large and complex ships, particularly cruise ships that carry large quantities of people, are designed, built and operated in highly competitive markets. Many cost-saving improvements in technology and process have evolved in the commercial ship industry in recent decades as a result of competitive pressures. These improvements have significantly reduced the life cycle costs and improved the quality of life on these ships. European yards have had to compete with each other for work from many customers for ships designed to very flexible standards. Thus, a once stable shipbuilding industry started to transform into a high velocity environment. To maximize financial return in a competitive environment, they have organized, strategized, and planned their work in a very innovative and dynamic way, similar to the pharmaceutical and IT industries. As mentioned before, shipyards tended to outsource almost all activities to small and medium-sized companies. The result is yards that are streamlined with manageable overheads and efficient facilities.

European shipyards are concentrating on the niches of ship types which can uniquely be built with European infrastructure of thousands of suppliers and subcontractors, keeping many small and medium enterprises well occupied. In order to survive in the context of increasing competition, European shipbuilding companies are constantly preparing for possible rapid

and radical changes. These changes can be caused by changes of standards in the shipbuilding, such as implementation of new technologies or environmental requirements to modern ships, or just by a dramatic decrease in new cruise ships demand. Here are some examples of changes which have happened in the shipbuilding industry during the last decade.

At the beginning of 2000s, Marioff created new standards for fire extinguishing systems for cruise and passenger ships. Dozens of competitors were outperformed during a very short period of time. New standards for installation onboard were created which in turn caused new demand for new kind of installation companies.

At the middle of 2000s a new safety regulation was introduced. In accordance with the new standards, all ships (ca 60 000) had to be equipped with voyage data recorders, so-called 'black boxes'. Those companies who were able to react quickly enough to the new regulations became the market leaders like Consilium from Sweden and Rutter from Canada.

A similar situation happened at the end of 2000s, when again new environment regulations were introduced and in accordance with new standards all ships had to be equipped with an exhaust gas cleaning system and ballast water treatment system. Once again, those companies which could react quickly enough were in a position to take the biggest part of the market, such as Alfa Laval from Sweden in ballast water treatment systems market and Hamworthy (UK/Norway) in exhaust gas cleaning systems.

These kinds of changes created a positive change as a number of companies obtained a huge market. In these cases, the question was not about survival, but about gaining new markets.

After the attack September 11 in 2001, all cruise ship newbuilding orders were cancelled. The whole industry faced the dramatic decrease in orders to zero almost overnight. Although as described before shipbuilding projects last from one to three years, were almost no cruise shipbuilding projects for a period of one year.

A similar situation happened at the end of 2008, caused by a global financial crisis whereby most of cruise ships newbuilding orders were cancelled. Although there were still a number of newbuilding projects under construction and many companies were able over year time to

adapt to the changing conditions, many companies were forced to look for alternative markets for a few months.

The next decrease in orders could happen again soon if Asian shipyards start to receive cruise ships newbuilding orders. Once again, it is important to remember, that in the case of a substantial decrease in demand for cruise ships newbuilding in Europe, not only might shipyards remain without work, but thousands of small and medium-sized companies across Europe including hundred thousands of people would also suffer.

Although many studies (Majumdar, 2000; Doving, 2008) of dynamic capabilities consider change as a negative factor, such as a decrease in demand, the current study highlights the importance of positive change as creation of new possibilities. Thus, when discussing dynamic capabilities in the shipbuilding industry it is considered that the shipbuilding industry in Europe consists of thousands of SMEs, the industry itself is stable, and rapid and radical changes do not happen very often.

The whole European shipbuilding industry can also be divided into three main sectors (Molemaker, 2009):

- ship construction (shipyards) which consists of:
    - shipyards and
    - shipyard subcontractors
- marine equipment (shipyard supply industry)

Shipyards. These are companies which possess big production facilities, like docks, steel structure workshops, heavy lifting cranes etc. The shipyards are the main contractors for the shipping companies which order new vessels.

In former times in Europe and at present in Asia, the shipyards constructed a whole vessel from A to Z mainly by utilizing their own human and technological resources. The situation at European shipbuilding yards started to change after the Second World War, when European

shipyards started to rely more and more on subcontractors and specialized product suppliers. At present, a European shipyard can be considered as a legal, financial and project management organization, which still possesses ship construction facilities, but does not have substantial human or technological resources to conduct the actual shipbuilding work. Although European shipyards still employ a lot of their own employees and have become large enterprises (many of them have over 2000 employees), these shipyards mainly do only hull construction work, while the most sophisticated part of the shipbuilding process, such as technical and interior outfitting, detailed engineering work and different high added-value products' technological development are outsourced to a cluster of companies-subcontractors working in close relations with the shipyards.

Subcontractors. There are numerous small and medium enterprises operating in the shipbuilding industry sector. Most of them are subcontractors to the shipyards. These companies undertake the supply of materials and their installation onboard ships under construction and can be divided into welding, piping, electric or interior companies. Some companies are capable of performing large projects like 'turn-key' interior outfitting of a whole deck of a ship; whereas some of them can only do installation of, for example, insulation in smaller areas.

Indeed, most of the Finnish enterprises operating in the shipbuilding industry are small and medium-sized enterprises (SMEs). In Finnish shipbuilding, 41% of enterprises are in the turnover range of 1–5 million euro. Less than one-third (31%) of the enterprises belong to the turnover range of 5–20 million euro. As regards personnel, 56% of the enterprises are small (employing fewer than 50 persons), 38% of the enterprises are medium (employing 50–249 persons) and only 6 % are large (employing more than 250 persons) (www.inoa.fi, 2011).

Marine equipment. The marine equipment subsector is highly heterogeneous and consists of many relatively small companies. Estimates range from 5,000 to 9,000 suppliers worldwide. Many of those are also active in other business areas, e.g. car or airplane industry. Total market value was estimated at € 57 billion in 2005. European based companies, i.e. having their production sites in Europe, account for 36% of this. Some of the key areas in Europe are mechanical engineering including engines (26% of European production value), electrical engineering/electronics (18%) and steel products (15%) (Molemaker, 2009), but

there are also a number of other small European marine equipment manufactures whose range of product vary from fire extinguishing systems, exhausts gas monitoring systems to radars, speed logs etc. These product companies focus on R&D, innovation and logistics. In product supply, differentiation is getting harder and harder, as supply components and elements are very close to each other. Thus, competition among equipment suppliers has become really fierce. If companies doing installation work (subcontractors) face competition only with local (European) companies due to the protectionism of European labour policy, then product suppliers are in global competition, which does not recognise borders. Even the most innovative and sophisticated products can be copied within a very short time and produced in low cost areas achieving significant price advantage.

Within the marine equipment sector, several product and services categories can be distinguished/ identified, although it should be noted that no standard categorization of marine equipment supplies exists (Molemaker, 2009). The following table gives an indication of typical groups that are relevant within the marine equipment sector.

Table 4. Main groups and categories of marine equipment

Categories	Marine equipment systems
Propulsion/power systems	1. Propulsion, power generating systems 2. Auxiliary Power generating systems 3. Auxiliary Systems 4. Electrical systems, plants and cables
Navigation/communication/control (electrics & electronics) equipment	5. Instrumentation, control and navigation systems 6. Communications and Entertainment Systems 7. Lightning Systems 8. Steering Systems 9. Special Ship Operation Systems
Cargo related equipment	10. Mooring, Deck Machinery Systems 11. Cargo Systems
"Hotel" and related equipment	12. General Outfitting Components 13. Heat, Ventilation, Air Conditioning Systems 14. Accommodations Systems
Other miscellaneous	15. Safety and Life Saving Systems, Environmental Protection Systems 16. Other Systems 17. Materials

(Source: Balance Technology Consulting, 2000. Drewry Shipping Consultants Limited, 2002; redesigned) by ECORYS.

The role of marine equipment manufacturers has become more important over time. Originally, most of the shipbuilding work was carried out at the shipyards themselves. With technological advance, the role of marine equipment industry – as the supply industry to the shipyards - has increased dramatically. While in the 1970s most of the shipbuilding work was carried out at the shipyards themselves, nowadays the share of marine equipment is assessed at 50%-70% of the product value, and can be 70-80% in the more specialized segments. Close ties between equipment suppliers and shipyards therefore exist (Molemaker, 2009).

To summarize, Europe's shipyards may not be among the big global players, but they still play a major role in the European economies. With over 500 000 employees, Europe's maritime industry generates annual revenues in excess of 80 billion euros (ShipPax, 2011).

The European shipbuilding industry consists of a few large shipyards and hundreds of small and medium-sized contractors and marine equipment suppliers. Although the industry is considered as stable, substantial changes might be caused by changes in regulations, demand-side development like macro situations, change in the world and especially by supply-side development like substantial technological development.

Competitive advantages of European shipbuilding industry are distinguished by important determinants for value-added generation, such as sophisticated supply-chain, production processes, labor productivity, location of buyers (in 2008, 69,5% of shipping companies were located in Europe), access to resources like skilled labor, knowledge and capital (in particular government supports to SMEs).

4.2. Marioff Corporation Oy as a Case study

The purpose of this section is to provide a general overview of the first case study company and the justification of its selection.

Marioff Corporation Oy (Marioff) was founded in 1985 with pure entrepreneurial spirit and a motivating mission, namely, to protect people, property and business from fire, on land and at sea. The spirit lives on in a story of continuous growth.

Figure 5. Development of the turnover of Marioff. (source: www.inoa.fi, January 2011)

The company's background in marine and offshore high-pressure hydraulics (hence the name, MARIne and OFFshore) led to the development of a fire protection technology using the best attributes of a truly environmentally benign agent: water. Since its launch in 1991, HI-FOG has earned a reputation for superior fire suppression performance, becoming the standard for water mist fire protection.

Key to this success has been the company's extensive research and development program, carried out with leading independent authorities and fire testing laboratories. In 1992 Marioff received the prestigious Seatrade Safety at Sea Award, and the President of Finland presented the Innovation in Finland award in 1995.

Marioff's greatest reward is the growing list of fires suppressed or extinguished by HI-FOG, both at sea and on land. Already a trusted solution at sea, HI-FOG is becoming increasingly

important on land. With a growing number of protected installations, the range of both marine and offshore applications of HI-FOG continues to expand.

How does the product work and how does it differ from other brands? The water mist is made by discharging plain, potable water at high pressure through specially designed, patented HI-FOG sprinkler or spray heads. The water mist is discharged at high velocity by the system's high-pressure pumps or accumulators. The micro-droplets of HI-FOG represent water in its most effective fire fighting form. The high pressure enables the water mist to penetrate into the fire (www.marioff.fi, 04.11.2011).

Figure 6. Illustration of activated Hi-Fog system. (source: www.marioff.fi 13.08.2012)

HI-FOG delivers extremely good performance, combating fire by removing two of the main elements a fire needs to survive: heat and oxygen. This is achieved with remarkably little water: HI-FOG uses up to 90% less water than conventional sprinkler solutions.

Table 5. Comparison of main technical features of Hi-Fog and conventional sprinkler system. (source : www.marioff.fi 13.08.2012)

HI-FOG uses 70-90% less water than traditional sprinklers, and is delivered through pipes that are much smaller in diameter than traditional sprinkler systems - these were the main competitive advantages when the system was created. (www.marioff.fi, 09.02.2011).

Marioff has been chosen as a case study company for the following reasons:

Firstly, Marioff is today the world's leading supplier of water mist fire protection systems. Marioff is a success story about how a small technological company has become a world leader within a short period of time, not only surviving through radical changes of the industry, but creating substantial changes.

Secondly, despite very advanced technology, HI-Fog system is not unique. There are competitive technologies which provide similar results. Thus, Marioff did not enjoy monopoly status, but had to deal with competition. Despite the fact that the company has always faced very fierce competition from other sprinkler companies, as mentioned before, Marioff's HI-FOG has achieved 100% presence on all cruise new buildings for over a decade.

Thirdly, Marioff was selected because they have a substantial history of development in dynamic capabilities.

Finally, Marioff is also known to have had a high-performing business over long time.

Therefore, the researcher tries to analyze how this company anticipated and successfully adapted to changes over the long-run and the promoted processes which favoured the development of dynamic capabilities will be analyzed in the following chapters.

4.3. Merima Oy as a case study

This section will provide an overview of the second case study company.

Merima Oy (Finland) – a leading Finnish 'turn-key' supplier of the most prestigious public areas outfitting. The company represents subcontracting on newbuilding in Finland and so-called 'northern' mentality.

Merima Ltd. was established in 1987 by two private individuals. Their business model was to do what they knew best: supplying interior solutions for all kinds of ships. The timing was ideal. Shipyards were increasingly subcontracting installation work, and there were only three noteworthy competing companies at the time. The growth-oriented company quickly set its target at becoming the business leader in Finland within five years. The target turnover, EUR 1.7 million, was surpassed during the third year of operation (www.merima.fi, 2011)

Figure 7. Development of the turnover of Merima. (source: www.inoa.fi, January 2011)

During its first year, Merima concentrated on supplying complete interior solutions to shipyards, but already in 1988 material deliveries were being launched. A production unit for interior elements was established in Kerava. Merima received its first major turnkey order in 1989 when it supplied m/s Fantasy, which was built at the Wärtsilä Marine shipyards in Helsinki, with executive suites.

Shipyards increasingly began to use turnkey solutions. This turned out to be very profitable for Merima. With large orders worth up to millions of Euros, new growth prospects opened up for subcontractors skilled in turnkey bidding and project management.

At the end of 1993, Merima significantly enlarged its production and office space to house an increase in the number of employees. Production of materials was also increased and diversified. Turnover had reached EUR 30 million.

Figure 8. Comparison of Merima's turnover with average in the category (source: www.inoa.fi, 13.08.2012)

The Spirit and Voyager ship series built at Masa Yards in Helsinki and Turku were of crucial importance to Merima's growth. The company was a major supplier of turnkey solutions for these series. Merima supplied approximately 4,500 m2 of public space to each one of six ships in the Spirit series, built at the Helsinki shipyard between 1999–2004.

Merima's position as the premier turnkey supplier of naval interiors in Finland was finally established when Merima was chosen as the supplier for practically all public space (altogether 6,000 – 8,200 m2) on each of three ships delivered to Tallink shipping by Aker Finnyards in Rauma between 2002–2006.

Figure 9. Illustration of highly complicated public area 'turn-key' outfitting, conducted by Merima (source: www.merima.fi 06.02.2011)

The significance of exports for Merima has been negligible until recent years. Merima's primary area of operation was Finland up to 1998, when Merima has been engaged in the fulfilment of new building projects for European shipyard industry (mainly for German companies). Since the beginning of the 2000s, Merima has also concentrated more on cruise vessel renovation projects, which have mainly been associated with the Caribbean cruise fleet in the United States. At first, Merima co-operated with another Finnish turn-key subcontractor Almaco - the latter taking care of the marketing of joint activities to shipping companies. After approximately three years of co-operation, Merima decided to take care of the sales as well. In order to support the renovation business, Merima established its office in Fort Lauderdale in 2003. On-site presence near the Caribbean cruisers has also contributed to efficient performance of possible warranty repairs. Besides this, Merima has performed warranty repairs on behalf of other suppliers and thus been able to increase the office's sales turnover even since the early stages.

In addition to solid skills, the willingness and ability to work in most demanding conditions are expected from Merima employees. For example, repair work schedules are usually very tight and the works must be performed under the most difficult circumstances, sometimes even while the vessel is in motion. Readiness for adapting oneself to local procedures and culture is especially important. For example, in the case of new building operations, the work distribution between the contractor and shipyard differs significantly as compared to operations in Finland. Most of the European shipyards consider surface and background installations as different contracts. Accordingly, flexibility and customer-friendliness are

emphasized in all operations. In this connection, project and risk management are becoming increasingly more important in addition to technical skills.

The share of export in Merima's operations varies depending on the order portfolio of the Finnish shipbuilding industry, but in the last few years it has amounted to approximately 1/4 of the company's turnover. International conversion building has significantly contributed to the company's employment situation, since Finnish shipbuilding has recently suffered some setbacks. Merima intends to further enhance its international commercial activity and search for new markets in the fields of both building and renovation. For Merima, internationalisation means long-term investment, which has been incorporated into the company's strategy, development of operational activity and recruiting skills profiles.

For Merima, it is evident that you need to be there and develop good relations with many different players in order to even propose a deal. Because of this, Merima's internalisation strategy involves joining forces with local actors, for example, by including local suppliers in Merima's complete delivery already in the bidding stage.

4.4. Lloyd Werft Bremerhaven GmbH as a case study

The purpose of this section is to provide an overview of the third case study company.

Lloyd Werft Bremerhaven GmbH (Lloyd Werft) (Germany) has more than 150 years of experience in repair, conversion, modernization and completion of every kind and almost every size of ship. The shipyard has extensive facilities which are strategically located in Bremerhaven on Germany's North Sea coast.

Evolution of the present Lloyd Werft is closely connected with the Bremen company "North German Lloyd". In 1857 in Bremen, this shipping line was opened and in the same year a small repair workshop was established to service its growing fleet. The repair workshop was a major success for NDL and in 1902 the repair workshops became an independent subsidiary of the company. However, with the success it also became clear that the Bremen workshop was not adequate to handle the bigger ships. In 1863 another workshop in Bremerhaven was opened, initially the company only erected a single building and set up a small machine workshop. In 1869, NDL decided to expand its repair operations in Bremerhaven and began building a new dry dock and new workshops. This is the location of the current Lloyd Werft premises. It was not long before they had plans for a second dry-dock. In subsequent years and through the first half of our Century, between world wars and economic crises the yard cleverly adapted itself to the requirements of the ruling market of the period.

After the end of the Second World War, the company began to slowly rebuild itself by firstly repairing ships belonging to the U.S. armed forces. During the 1950s years, the company then opened permanently as a repair operation for all types of ships and for customers of all Nations. This step brought success back to the yard.

In the beginning of the 1970s, the shipyard, now under the name "Shipyard Hapag Lloyd" "AG", underwent a comprehensive modernization. New cranes, central workshops, an administration building and a department for stainless steel and Aluminium processing have been added.

The yard was well-equipped for when the conditions of competition on the world market for shipbuilding and repair in the 1970s and 1980s dramatically increased. Thanks to its advanced equipment, qualified staff and new market strategies, the company was able to remain competitive in the market.

In the Middle of the 1980s the, Bremer Vulcan AG, took over the yard and named the company as their subsidiary. A younger "Lloyd Werft Bremerhaven GmbH" soon made the company a worldwide name with the modification of large passenger ships, including ferries and Cruise ships. Within a short time they had won some spectacular major contracts: m/s Queen Elizabeth 2 and m/s Norwegian Sky; and the yard repeatedly demonstrated their performance capabilities.

Economic difficulties in the mid 1990s radicalized the situation for the yard, the parent company, Bremer Vulcan AG, went into bankruptcy and consequently the yard was forced to open conciliation procedures. With new Investors, the company was again stabilized, and its continued existence could be secured as "Lloyd Werft Bremerhaven GmbH". The price for maintaining competitiveness was a reduction of 180 employees from 430. The introduction of flatter hierarchical structures and more flexible working hours helped to ensure the future of the company.

Figure 10. Illustration of a complicated passenger ship conversion done by Lloyd Werft (source: www.lloydwerft.com, 06.02.2011)

Today Lloyd Werft is renowned for their specialties worldwide, the high-tech-passenger ship renovation and completion in record time. Shipping companies in Germany and abroad appreciate and know about the experience, the quality and expertise of the Bremerhaven company and its once again large team of over 400 people.

The following table summarises the main figures of the case-study companies.

Table 6. A summary of main figures of the case-study companies.

	Marioff Corporation Oy	**Merima Oy**	**Lloyd Werft Bremerhaven GmbH**
Main field of activity	High pressure fire-extinguishing system	'turn-key' public areas outfitting at ships newbuilding mainly in Finland	Traditional ship repair, conversion and modernization shipyard
International presence	World-wide presence	Finland, Germany, USA	Germany
Number of employees	200	90	over 400

The year of establishment	1985	1987	1857
Revenue in 2010	66 mln EUR	44 mln EUR	50 mln EUR
Country of origin	Finland	Finland	Germany
Most significant events	1985-1990 – new standards were created based on Hi-Fog 2000 – fire extinguishing system became a must for all passenger ships 2006 – retrofit market was over 2007 – Hi-Fog had 100% of cruise newbuilding industry 2007 – Marioff was sold for 250 mln EUR, while company turnover was 60 mln EUR	1989 – to become a "turn-key" outfitter 1993 – a need to tailor-made design elements 2000 – decrease of cruise ships newbuilding in Finland penetration to Cruise; vessels refurbishment market 2004 – influx of cost-effective East-European companies 2010 – shipbuilding industry in Finland is almost closed; Enhancement of global presence development	1983 – m/s Queen Elisabeth – tremendous repair during 2 weeks 1996 – change of the ownership led to new type of projects – cruise ships newbuilding completion 1997 – establishment of Grand Bahama Shipyard 2000 – partnership with Fincantieri

All these three companies are considered as outliers (having superior performance) who achieved a great success, managed to maintain their success during a long period of time, and survived in stable and turbulent times.

Chapter 5. Analysis. Marioff Corporation Oy.

In this chapter the researcher will examine the propositions presented in the conceptual framework by the Marioff Corporation Oy case-study.

5.1. Stability and dynamism in the environment

Proposition 1: The potential gain from dynamic capabilities is significant even in stable environments.

The literature review highlights that development of dynamic capabilities requires deliberate practice and proactive actions.

Marioff Corporation Oy success was achieved to a great extent due to such deliberate actions to create new practices. The management of this company dared to question the existing 'best practices'.

Marioff Corporation Oy was established during the time when the shipbuilding industry was stable and there were no signs of any radical changes on the horizon.

Different marine fire extinguishing systems had already existed and in general satisfied the customers' needs. All marine regulations were written according to the existing systems and technologies. Shipping companies took it for granted that fire extinguishing systems could only be low pressure systems and in case of fire, most of an interior would be damaged by water rather than fire.

This was the perfect time for the founder of Marioff, Mr. Göran Sundholm, whose main business principle was to create markets rather than to follow a flow.

He considers a stable time as a great potential for innovation:

'you just should recognize a customers' need and offer them what they need' (G. Sundholm).

Another Marioff's top manager (A) supports the idea:

'during stable times most of the companies are getting flabby and reluctant to change. This is a unique possibility to come up with innovative technology and to create market's demand before rivals wake up to respond'.

Mr. Göran Sundholm from Marioff particularly emphasized the importance of understanding clients' problems. He described the process he follows to understand better the problem, but knowledge of the problem, which means new business opportunities, does not automatically lead to success.

'Companies need to have processes which deliberately test new concepts' (G. Sundholm).

This was another main principle of the great Finnish entrepreneur, but the most important was that Marioff did not wait until their business faced rapid and radical changes.

In the case of Marioff, as stated before, when they invented their system, a marine fire extinguishing system was already in place. It was a stable market, where no one could expect any changes. There was not even any widespread problem with the existing system. Many companies just tried hard to make the production of that low-pressure fire extinguishing system more efficient and of course there was always pressure to reduce prices.

The idea to do something different came to the mind of the founder of Marioff based on the need of only one shipping company, which could not install the existing market-ready fire extinguishing system because of its weight. But other companies did not have such a problem. Thus, Marioff started to solve the problem only of one shipping company. Of course, the founder of Marioff anticipated that there might be a big business opportunity if his new system offered substantial advantages.

As mentioned before, the business environment on the market was stable. Mr. Göran Sundholm owned another company (GS-Hydro Oy), whose business was brisk, at least at that

time. But he decided to take a risk and to try to invent a fire extinguishing system which would be lighter than the low-pressure system existing at that time.

What he did was to sell his first high-pressure system, even without having a product. He took a risk and made an experiment and it was a very successful experiment.

He highlighted, the importance of self-motivation in the sense that it was not the market that should drive the process, but rather companies should drive themselves into the situation where they should come up with new products or services:

> '... you have to be very dynamic in product development. Sometimes, you sell the product you don't even have. Then, you are forced to do it. In product development, if you do not have any timeframe, it takes forever. Large companies spend years and years on new product development and spend millions. But if you have a ship which must leave in three month and you need to have your system approved, then you are in a different situation...' (G. Sundholm).

This experiment led to extraordinary success, as the system demonstrated significantly better performance than fire-extinguishing systems existing at that time. After some time and even more tests and demonstrations of flawless performance of the new system, the International Maritime Organization had to approve the new system and in order to do this, a new standard had to be written. Due to the fact that there were no other alternative high-pressure fire-extinguishing systems, the standards had to be written based only on one system, which was Marioff's Hi-Fog system. This led to the situation that when potential clients spoke about high-pressure fire-extinguishing system they spoke about only one particular system.

Although the system solved the problem only of one shipping company, during the performance tests, the systems demonstrated other essential advantages, such as the small amount of water used, and the fact that the new system was easy to install and it did not require much space.

Space on ship was another big problem with passenger ships at that time. Thus, the demand for the system started to grow. Later, when the impact of shipping industry on the environment started to be criticized more and more, shipping companies were forced to start

thinking seriously about how to reduce the amount of exhaust gas. One of the answers was to reduce the weight of ships. Therefore, the demand for the light Hi-Fog system continued to increase. The next stage was a rise in oil prices, which forced shipping companies to start thinking about how they could reduce the fuel consumption of their ships. Again, the low weight of Hi-Fog system was a possible solution.

Thus, the market itself found how a new product could solve many of their other problems and an influx of orders for Marioff was guaranteed.

Although Marioff product and the system were very strongly patented, after some time, the competitors started to appear in the market. But Marioff recognized the importance of continuous product development:

> 'it's very important for small and medium-sized companies to have continuous product development. Every five years you need to have new products, otherwise the competition will catch you up. It is like the mobile phone. You do not sell five-year-old phone today' (G. Sundholm).

The difference of his approach even compared to theory, is that he considers the shipbuilding industry as a very dynamic one, the same as the IT or pharmaceutical industries. And that is mainly not because the changes in the shipbuilding industry happen as often or are as fast as in high-velocity industries, but because of his own personal dynamic character. Marioff's founder enjoys the fact that most of the companies consider shipbuilding as a stable industry where product life-cycle is relatively long. For him, this is a perfect situation for his rivals to become flabby.

Mr. Sundholm highlighted the fact that business leaders should not wait until they see some changes on the horizon, rather they have to create these changes by themselves. In this case, they can always be ahead of the competition and companies should not be scared of the competition in cost-efficient areas like China or smart competitors who follow 'best practice'.

Although the founder of Marioff described his process of product development, it can be considered as a dynamic capability and especially as a capacity to sense new opportunities and seize them.

Indeed, the process of product development is well studied and described in the literature on strategy (Baeney, 2006; Wit, 2004; Linstead, 2004; Johnson, 2005; Salamon, 2000; Harrison, 2000), but it does not study how new opportunities can be sensed and developed into new innovative product, service or business model.

Despite the fact that in the famous paper of Teece, Pisano and Shuen published in 1997 they started their research on dynamic capabilities as the analysis of processes and routines, in 2009 at the heart of dynamic capabilities were already capacities of sensing, seizing new opportunities and reconfiguration of resources. That's why the capacity of Marioff to foresee new opportunities and react accordingly can be considered as a dynamic capability.

Marioff was not only successful in the beginning when the system was invented. The new invention caused a shift in perception of experts in the shipping and shipbuilding industry about marine fire extinguishing systems. The new product caused a significant change in the market, whereby rivals had to deal with unpredictable conditions. Some rivals had to accept the fact that the market was shrinking for them, and some rivals tried to cope with the situation and invent their own similar product. As a result, after several years Marioff had a few, albeit fierce, competitors.

By that time, Marioff faced substantial changes in the market. 2006 was the final year when in accordance with the regulation, all passenger ships operating in international water had to be equipped with a fire extinguishing system. As a result, there was a slump in demand for the system. At that time Marioff was already a fully-fledged company and ready for changes. They had a capacity to foresee the possible changes and imminent opportunities. A new challenge was the cruise ships new building industry. But cruise ships needed much more sprinklers that ordinary passenger ships (RoPax). Capabilities developed during stable time allowed Marioff to meet the new challenge quickly enough and launch a new product - Hi-Fog 2000, which allowed to cover up to 25m2 by one sprinkler (almost double of previous product coverage, which was 16m2), and this way substantially reduced the number of sprinklers needed per ship. Once again competitors were left far behind.

Marioff's top manager (B) described when they started to prepare for possible changes in the market:

> 'it's too late to try to learn how to change when a need to change is already there. When the pace of change is frenetic, only those companies which learn how to be agile in good time before can survive. It is like at school. Children learn mathematics, physics, foreign languages and other subjects a long time before they actually need to use this knowledge to earn money for a living. If you do not get this knowledge during childhood, then it is already very difficult to catch up when you need to work'.

During the cruise ships newbuilding boom (2006-2008), Marioff prepared for the next possible dramatic change. Although there was not even a sign of fore coming global economic crisis and the cruise ships newbuilding industry provided a surplus of cash, Marioff was actively looking for alternative markets. The new targets were China and South Korea with their multipurpose offshore ships, offshore oil platforms and after-sales for cruise ships.

In 2011 when cruise ships newbuilding industry suffered from lack of orders, Marioff's middle manager (G) described their position in the market as follows:

> 'we lost our unique position in the newbuilding market, our competitors in Germany and Italy got some part as well, but during last years we have developed after-sales market. The refurbishment business is growing. In a couple of years the total value of refurbishment and refit market will exceed new-buildings. Although we have sold our services very actively during the new building boom, we have established all necessary contacts with cruise companies, shipyards, and major refit contractors. We have had a few dedicated persons who were dealing only with this market segment. Now, after-sales segment is the fastest growing in our company. We have a whole department focusing on it. We offer our clients new solutions and products, proposing them to replace the previous versions. All this would not happen overnight. I know that our competitors still now do not pay enough attention on this segment. I believe it will take them several years to develop it'.

Marioff was always one step ahead of the competition, developing new products, services or business modules at the times when there was no obvious need for that.

> '...for several years we have had a business development department. In the beginning it was not clear for everybody what are the main objectives of this

department. Their results are difficult to measure and that's why it was not popular at least in the beginning, because people were tempted to criticize those, whose results were not possible to measure. The main goal of this department was to see new perspectives in good time before competitors do. I think they do their work good enough to see potential there, where it is invisible for others' (Top manager C).

The existence of the business development department, demonstrates Marioff's deliberate actions to develop their dynamic capabilities at the time of stable environment.

'...a few persons, working for this department travel around the globe; they meet different people from different sectors and just communicate enormously. The main goal is to understand what is needed in the market, where is the next possible niche. Then they share ideas and opinions with other members of the top management and the owners' (Top manager C).

Once again, this emphasizes that Marioff has a clear process in terms of how they look for new opportunities and how they are responsible for them. Although the literature (Teece, 1997) does not recognize the importance of developing the adaptive approach in stable industries (Reeves, 2011), Marioff's case demonstrates that dynamic capabilities such as the capacity to develop exploration learning should be developed during stable times. Then, they can be efficiently exploited during periods of increasing change. Despite the fact that Marioff now has a business development department, it did not always have it. Since foundation of the company until Marioff was sold in 2006, it was a role of the company's founder to have the foresight to sense future opportunities. Nevertheless, to look for new future business possibilities was always imbedded in Marioff's business practice.

The Marioff success highlights that a potential gain can be enormous even during stable times, while dynamic capabilities can shape the market or even create new markets. The Marioff case provides strong evidence for the proposition 1, that the potential gain from dynamic capabilities is significant even in stable environments.

5.2. Entrepreneurial processes

Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.***

The literature suggests that a senior manager is a person who has strategic thinking which focuses not only on how to beat the competition but on understanding the client's needs and the firm's capabilities, reconfiguring and leveraging its resources to achieve these (Simon, 2010).

Mr. Göran Sundholm, an energetic Finish entrepreneur, always took part in every significant decision made at the company. Before the company was sold to a US-based giant corporate, it was largely a one-man show.

According to Mr. Sundholm it is inevitable and very important that the power in a small and medium-sized company should be concentrated in one hand, because a small company usually does not have financial resources to make many mistakes. He admitted that when Marioff grew and achieved a certain size, the organizational processes had to be changed. Marioff tended to become a large company and this meant a different approach to business management.

> 'When the company size starts to get too large, it is the next stage. When it is starting to be more established, then you need different rules' (G. Sundholm).

> '...but before that, senior management is responsible to understand customer needs and lead their company development accordingly... .' (G. Sundholm).

As a result of the strategic vision of Mr. Sundholm, Marioff became the number one fire-extinguishing system provider in the cruise industry. Although Mr. Sundholm had a team of the smartest experts in the field, their role was mainly implementation of a strategy developed by their president.

> 'It was definitely him, who saw new business opportunities and knew how to commercialize these opportunities' said a top manager (C) who has worked for Marioff since almost its foundation.

According to another Marioff middle manager (D), the chief executive always played a vital role in the company:

> '... we always had a very clear strategy, and we stuck to it'.

A company's adaptability capacity depended entirely on him.

> "... a manager (top manager, CEO) should be an entrepreneur. An entrepreneur is a person who can foresee the future, a person with a vision, who could see the coming changes and who could predict what is necessary to do now to meet the expectations of the clients in 5 years" (middle manager D).

The middle manager D emphasised that in contrast with Asian companies, who compete on prices, European companies should compete on innovation, to create markets, and all these are a primary job of the senior management. He also added that

> 'a company is innovative and ready for any changes, when their leader is innovative and flexible' (middle manager D).

A senior manager at Marioff (C) asserted that Mr. Sundholm was not only an entrepreneur himself, but he demanded that all employees would behave like business owners.

> '... although Marioff always paid higher than average salaries, many potential employees were scared to come to work for Marioff. Mr. Sundholm had a reputation of being an extremely demanding person. He could fire anyone immediately if a person continuously did not demonstrate entrepreneurial behaviour and was not a 'guy with spikes'.... At the same time, there was trust in relationships. We had clear goals and the whole business culture encouraged people to make operational decisions. What was particularly good, that the owner trust his employees' (senior manager C).

The fact that Mr. Göran Sundholm is a great entrepreneur and innovator is also confirmed by the number of awards he has received. For example:

- In 2006 G. Sundholm was a finalist of 'The Ernst & Young World Entrepreneur of the Year'
- In 2005 G. Sundholm received the Finnish National Entrepreneur of the Year Award, given to the most successful and innovative entrepreneurial business leaders around the globe
- In 2002 G. Sundholm received the Finnish National Board of Patents and Registration Award for the highest number of patents in Finland
- In 1998 G. Sundholm received the Finnish Technology Export Award 1998 from the President of Finland, Mr. Martti Ahtisaari
- In 1996 G. Sundholm received the Finnish Innovation Award from the President of Finland, Mr. Martti Ahtisaari
- In 1992 G. Sundholm received the prestigious 'Safety at Sea' Award
- Already in 1977 G. Sundholm received The Finnish Innovation Award from the President of Finland, Mr. Urho Kekkonen (www.maricap.com, awards. 05.02.2012).

During the interview the founder of Marioff emphasized several times that it is the responsibility only of the chief executive to have skills and knowledge of how to foresee the future trends.

According to a middle manager (G):

> 'During the time of G. Sundholm, he was an ultimate generator of all ideas. Actually even he did not welcome any 'bright' ideas from his middle management. He thought that all best ideas come only from him. He did not need any 'business development department'. He always told us what to do and where will be next big market. Honestly speaking, at most occasions he was right. One of the reasons why he sold Marioff, was because it became too large for him. He liked to have 100% control over

all decisions, but it is impossible in case of a large company. Then you need to have an organization who will decide what's better for the company, but G. Sundholm did not want it'.

The aforementioned highlights the fact that the entrepreneurial behaviour of their senior manager played a vital role in Marioff's capacity to sense and seize new business opportunities. Once again, this also confirms that G. Sundholm did not rely much on the capacities of others to sense and seize new opportunities. This part of the work he always did himself, maybe because he felt he was the best at it.

Although Marioff has routines which trigger development of entrepreneurial behaviour of their middle managers, it still remains unclear as to whether the company's top management develops this deliberately or not. Unfortunately, interviews both with middle management and with top management did not provide a definitive answer. Theoretically, the leading style of the company's founder and management style of the company's current owner do not emphasize such great importance of entrepreneurial middle management, but in practice it can be observed that top management appears to stay in the background, playing a secondary role in the company's ability to adapt to changing business environment conditions. An interview with Mr. Sundholm left the feeling that the capability of one person only can be enough to weather any rapid and radical changes. This is also justified by the facts that:

Firstly, Mr Sundholm worked almost alone when he established Marioff Corporation Oy.

Secondly, he rarely consulted with anybody when making strategic decisions such as what could be their next market segments.

Thirdly, all interviewees confirmed the fact that Marioff Corporation was a one man show for a long time.

Finally, even when Marioff Corporation became a relatively large company and Mr. Sundholm employed a managing director to run the daily issues, he was deeply involved in the business, retaining the control in the making of all important strategic decisions.

Therefore, in the case of Marioff, high level of entrepreneurship of their founder and chief executive G. Sundholm led to an exclusive position in his company. The fact that these are

his entrepreneurial skills which lead to extraordinary success can be found in G. Sundholm's other enterprises as well. G. Sundholm's first company GS-Hydro Oy became the world's leading supplier of innovative, non-welding piping solutions for hydraulic, and other applications on quality, reliability and cleanliness (www.maricap.com, GS-Hydro, 05.02.2012). Although Taifun vacuum cleaning system for industrial use was invented a long time ago, the system became a hit (over 600 Taifun systems have been supplied for abattoirs, poultry processing plants, fish processing plants, vegetable processing plants, marine galleys, professional kitchens and other industries worldwide (www.maricap.com, MariMatic, 05.02.2012)) only after G. Sundholm acquired Taifun technology. All these companies: GS-Hydro, Marioff, MariMatic became extraordinary successful under direct management of G. Sundholm.

Although the founder of Marioff played a vital role developing the company equally during stable times and during rough times. After the company was sold to the US corporate, dramatic changes started to be implemented. The president of the company was replaced and the top management in general started to play more administrative role rather than to be the main source of innovation. A heavy load of all kinds of reports fell to all levels of the organization.

As mentioned before, the founder of Marioff personally participated in making all important decisions. The role of middle management was purely implementation. It could be expected that the middle management would not have the capacity to sense new opportunities. Although after the change of the ownership Marioff started to struggle, new markets were not recognized and developed with the same pace as before, HI-FOG lost its unprecedented position in the cruise market, Marioff managed to maintain their growth and profitability.

Even after Marioff was sold in 2006, turnover and operating profit continued to grow and even the global financial crises 2008-2009 did not have a devastating impact.

As with most product development companies, Marioff has their own R&D department, which is responsible for the product development, but the business model of Marioff is built not only on superior products. Indeed, a decade ago the superior product was a key factor of their success. HI-FOG fire extinguishing system was much more developed than systems of

any of their competitors. Even today, only a few rivals have products which have the same performance characteristics, but those who have managed to get a share of the market. It became obvious that Hi-Fog 2000 could not guarantee sustainable competitive advantage and continue to be a source of growth for the company.

Despite the turbulent times in 2008-2010, Marioff successfully developed new market niches such as retrofit (fleet contact with Holland America Line and shipbuilding yards in Far-East.

Once again, after Marioff became a part of a large USA corporate, which first of all meant continuously detailed reports and essentially tightened control over many activities, the company managed to retain the entrepreneurial spirit of their middle management by continuing to give their middle managers free rein in many decisions.

However, one of the former top managers (F) asserted that after Marioff had become part of a large corporate, the pace of decision making had become extremely slow:

> '... it could take ages to receive a green light for any product modifications, and by the time R&D department starts development, the market is already gone. Although Marioff has its own R&D department, after G. Sundholm sold the company, they have not developed a new sprinkler generation HI FOG 3000. The technology is getting old...' (a former top manager F).

This statement underpins the idea of Mr. Sundholm, that development of new products in a so -called stable industry like shipbuilding should be as agile as in the mobile phone industry.

It should also be noticed that when Marioff became a part of UTC corporate, not all Marioff's middle managers could adapt to the new organizational culture. Some of them had to quit, but those who remained together with some new employees were nevertheless still able to preserve an entrepreneurial approach to their work.

When discussing the entrepreneurial approach of Marioff's middle managers, it is important to highlight their capability in combining routine work and analytical work. It is very hard not to yield to the temptation to conduct only the main daily routines related to major running activities, instead of systematically, independently or in teams, analyzing established processes, product features and the efficiency of their work.

It can be concluded that one of the key factors in Marioff's success is the notion of middle management that it is not a superior product which makes the difference between successful companies and the rest, but rather the complex, difficult to imitate organizational innovative routines.

That's why the main focus of the research at this stage became a study of which processes of the development of dynamic capabilities started to dominate after the founder of Marioff left the company.

It was found that many middle managers consider the company as their own. They consider that ensuring the enduring success of the company is purely their responsibility, while the responsibility of the top management is more administrative, incorporating competences such as legal issues and follow-up of cash-flows.

> 'I have been responsible for the market within 13 years. When I came to work for the company they did not have almost any business contacts there. I established all business relations; I did the first sale for Marioff on this market and ensured the superior position for 13 years. I have always considered that my success is the success of Marioff and the success of Marioff is my success. When I demonstrated by sales results my sales capabilities, I got free reins to continue making all major decisions concerning this market by myself. It was a great honour for me and I really enjoyed my position'

recalls one of the middle managers (H).

At Marioff, middle management was continuously encouraged to question established routines, to keep their proven and reliable suppliers in times of tough competition with possible newcomers. It is embedded thinking in the company that nothing is stable, tomorrow's newcomers might take the market over and that it is a role of middle managers to invent new product features, to find new organizational routines, suppliers, new innovative sales and marketing channels in order to reinvent a business model which continuously comes up with some better propositions, which can significantly contribute to added-value for their clients. According to a middle manager (G):

'here, at Marioff we are continuously looking for new ideas how to improve ourselves. We hold weekly meetings with key employees where we discuss how to improve our efficiency and how to make the system's performance even better. Those who interact with clients tell us about their concerns and client's vision about how Marioff should improve. We follow our founder's motto that first we should identify a customer's problem and then we should find a solution to this problem. This is actually how Marioff works on every level. If our site managers or project managers or sales managers bring a message from our clients, that they have some problem with our system, than we are beavering away to find a solution for it....

Once again, this demonstrates that Marioff has an established routine which supposes middle management to bring new ideas to the company.

... If we did not have entrepreneurial top management, innovative ideas of our front line employees would never be implemented, what would definitely cause a lot of frustration...' (middle manager G).

According to the aforementioned entrepreneurial behaviour of middle managers can be expected only if there is relevant support of top management.

Actually, the whole of Marioff's organizational structure was built on an assumption that they deal only with entrepreneurial people. According to Marioff's founder it is very important to understand that entrepreneurial top or middle management they have a very distinctive approach to their job. Answering a questions concerning development of entrepreneurial middle management he said:

'a motivation for them was that we were successful. We increased our turnover, we were the best company in the world. Everybody likes to work in a successful company. If we are successful and we get orders, everything goes very well and good profit..., that is what you need to keep people. That's why you have to develop all the time, to keep spirit of joy for working for a successful company. And they like to see improvement all the time. And as long the company is improving all the time, and there are new things, everything is always interesting.... But if you start that now it is only sells and deliveries, it is boring. ... and this is normally time when I sell a

company. If your new development starts to compete with your own product then you have to think is it now loop is closed. But entrepreneurial people they like to start new things develop new products from scratch...' (G. Sundholm).

The founder of Marioff knows the value of entrepreneurial middle and top management. He always tried to keep the most entrepreneurial people in his team.

'...the oldest guy, who worked for me he worked for me 32 years. The base team was going with me all the time. Many of them have never worked for anybody else',

said Mr. Göran Sundholm, the founder of Marioff and continued

'the whole organization should be as a family. In my companies we never had any huge hierarchies. Everybody knows each other and we are talking with each other on all levels. We do not have any big bosses. We are all important we are just doing different things. And this you can have only in small or in medium-sized companies. And this is a big advantage of small and medium-sized companies compared with large companies...'.

It can be concluded that the entrepreneurial approach of middle managers at Marioff was not so much developed rather than acquired. Recruitment of very entrepreneurial people was a process of development of dynamic capabilities at Marioff and probably, it was the most deliberate process.

Mr. Sundholm several times emphasized the importance to have onboard entrepreneurial people from the beginning. The fact that he invited to his new companies the 'old team' of entrepreneurial experts underlines this point.

Another process of development of dynamic capabilities was continuous selection of 'best people'. One top manager (C) said in the interview that

'When Mr. Sundholm called us in, we never knew would it be our last day in the company or we would receive promotion. He continuously selected only the best. When he was not in good mood he could fire a mediocre employee for any oversight'.

Thus, recruitment and further selection of the best employees was one of main processes of development of dynamic capabilities.

To summarize, at Marioff, entrepreneurial behaviour of their top and middle management played a vital role in the company development. It becomes obvious that entrepreneurial management is a must for development of dynamic capabilities, but entrepreneurial middle management plays a substantial role in this development. Although it is still difficult to conclude who are more important, entrepreneurial senior managers or entrepreneurial middle managers, it can be asserted that both are very important for development of dynamic capabilities and they are not mutually exclusive.

It can be concluded that Marioff's case study supports the research proposition that in order to develop dynamic capabilities firms should develop entrepreneurial behaviour on every managerial level.

The primary process of development of entrepreneurial management, which can be considered as one of the main dynamic capabilities at Marioff, was recruitment and further selection of the most entrepreneurial people.

5.3. Readiness to experiment

Proposition 3: ***Low-cost experimentations trigger development of dynamic capabilities.***

It is a great risk to launch a new product or offer a new service. Moreover, it is getting particularly risky to provide a new offering to an unknown market or to new clients.

Marioff's top manager (C) asserted that

> 'the best way to manage this risk is to have a low-cost trial'.

In practice, this means to offer to a new client a small quantity of products/services in order to determine a price level in a new market segment, new requirements. In case of a failure it will not cost the company a fortune and losses can be written off as 'experience".

As another middle manager (D) at Marioff put it,

> 'this kind of searches for new business areas is not for faint-hearted managers, but these trials ultimately trigger development. Of course, if new experiments end up with losses, it requires a fine-grained investigation, but conclusions can significantly solidify company's capabilities'.

For Marioff, low-cost experiments became a key factor for their success story. There were several companies in the market offering similar fire-extinguishing systems. However, as mentioned before, Marioff's founder, G. Sundholm, emphasised the importance of comprehensive testing. The system was tested in every possible condition. G. Sundholm almost always participated during every trial of their system. He also invited a lot of people to see their system in work. They travelled around the globe to test their system in new and ever more difficult conditions. If it was found that the system did not work in some conditions perfectly, so the relevant notes were sent immediately to the R&D team, who worked day and night to make the system operate according to the highest possible standards. These kinds of tests were continued over several years and are continuing now. By doing an enormous amount of tests, Marioff not only developed the system to the peak of perfection,

but also gained the confidence of their clients around the globe. As said by one of the key ex-purchasers (E) of STX Europe in Finland, to quote:

> "the most important criterion when we chose suppliers is a feeling of confidence, then quality and only then price".

Indeed, Marioff's HI-FOG system was always the most expensive system, but despite this fact, Marioff achieved 100% presence on cruise ships in the newbuilding market. Thus, low-cost tests and experiments led to the impressive success of HI-FOG system.

According to a top manager (C)

> 'to a great extent our success depends on certification of the product. We can start product sales for new applications only if we have proved by a number of real tests that the system will perform flawlessly. That's why we always make a number of tests before we start offer the system to a new market segment'.

A local distributor of Marioff in Russia said that

> 'although HI-FOG was a recognized fire-extinguishing system around the world, it was not so well-known for the Russian navy. Despite the fact that HI-FOG was tested in all possible conditions and almost on all type of ships, Russian authorities required us to make a lot of tests in their presence. This allowed us to prove to them that the system's performance was really as great as we described. Without tests we could not achieve anything in this market'.

Thus, tests of the product were very important for Marioff in order to prove to their potential clients that the systems is worth the asking price, but it was not the only purpose. According to Mr. Sundholm:

> 'during the tests you can learn more about your potential clients and their needs. Product tests are a part of product development process. If you see that the clients expect something different and you still have not spent a lot of money on the final product development, you can make changes immediately'.

Thus, at Marioff, tests and low-cost experiments were conducted with different objectives:

Firstly, to prove to the potential clients that the product is good enough (sales process).

Secondly, to learn the clients' needs and their expectation for the system performance (product development process).

Finally, as a test of applicability to new market segment (strategic development process).

To do experiments is deeply embedded into Marioff's everyday routines. Almost on every ship newbuilding, where Hi-Fog is installed, Marioff makes real tests. The main objective is not just to test the system in work and instil confidence in clients, but to analyze what can be improved. As aforementioned a great deal of such experiments are conducted together with clients. It is a normal practice at Marioff to use clients as a source of new ideas.

As Marioff's practice was to have tests and low-cost experiments as a continuous process, they developed not only a great product, good relations with clients and comprehension of the market's possibilities and market's trends, but they also developed organizational culture which triggered development of entrepreneurial behaviour of their employees. The shift of organizational culture was particularly emphasized by a top manager (B) who was convinced that no single formal procedure can substitute an organizational culture which supports experimentations and taking risk.

Thus, Marioff's case supports the research proposition that low-cost experimentations trigger development of dynamic capabilities.

5.4. The relevance of size to dynamic capabilities

Proposition 4: ***A different set of dynamic capabilities is needed for SMEs compared to MNEs.***

As described in the previous sections, entrepreneurial management played a vital role in development of dynamic capabilities at Marioff. Although entrepreneurial management can be considered as a dynamic capability in and of itself, the current study is focused more on the process of creation and development of dynamic capabilities rather than on types of capabilities.

It was determined that it is crucial to create processes which would support the development of entrepreneurial managers like freedom to do experiments, extensive communication with entrepreneurial top management, and other routines which would enhance capacities of entrepreneurial managers to see new horizons.

The process of developing capacities to sense new opportunities was perfectly described by a founder of Marioff who said:

> '... first of all product development is very important, but to get product development you need a customer. Specifically, you need a customer with a problem and only then you start to solve a problem and get a new product. But it is very important when you start this product development stage that you are close to a customer and you discuss with a customer, then you develop the right product, because the customers know their problem. And you solve their problem and at the same time you develop all the time a new thing. But it is very important, especially for a small company, that you should be very dynamic in product development. Sometimes you sell a product that you do not yet have. First you identify a problem, then you sell a product you do not have and then you go home sweating and saying, good, lets do that. The first Marioff system was sold without even having a product...'.

Although the founder of Marioff stressed attention on product development, the routine of extensive communication with clients and comprehension of their needs is essential for development of organizational capacities to sense new opportunities.

Marioff's founder has particularly emphasized the importance of discussing with a customer:

> 'of course you need to have some kind of gut feeling as well, but the customers, they know the problem and they have to confront them all the time. Then you have a problem and you have just to find a way to solve a problem. Of course you have to remember that the solution of such problems should be financially viable, you cannot do it for twice the price, you have to have your competition, you have to have a right price and a right solution' (G. Sundholm).

At Marioff, a process of development of dynamic capabilities means first of all communication with clients in order to get insight of their needs.

> 'We always knew that good market times would be over and what we did was to develop new markets at that time: land business, hotel business, tunnel business etc in parallel, so that when one market drops away we have other things to do' (G. Sundholm).

The above statement underpins the importance of development of dynamic capabilities not only in rapidly changing environment. The founder of Marioff did it regardless a pace of change.

This also means that managers should have ability to recognize new perspectives faster than the competitors. They should have a capacity to read signals in the market and start reacting immediately.

As described in the previous sections, experimentations play a vital role in the development of dynamic capabilities, but without capacity to recognize new market signals and to learn new skills companies would not know what kind of experiments they need to conduct.

The same ideas was continued by a top manager (B), who said that

> 'today, technological companies in Finland are more focused on technological innovation. Of course, it is very important to have the most innovative technology and to have its continuous improvement or faster than rivals launch new products, but in increasingly changing environments, when instability is the everyday situation we

should be ready to change not only product, but the whole business idea if necessary. In order to be more adaptive, we need to learn faster than our rivals, whether by learning about our customers' needs, or technological innovation or conducting experiments, but we need to be fast. This can be achieved only if the management is ready to make decisions quickly'.

The research did not find any confirmation for processes for the creation of dynamic capabilities described by Zollo & Winter (2002), wherein the main focus was on standardizing organizational routines (knowledge storing, codification, sharing) with the aim of fostering the development of dynamic capabilities.

Although Marioff actively involves their employees in operational reporting, they do not do knowledge storing, codification and sharing by issuing any blue-prints, company history books or detailed instructions. Nor do they see how these processes enhance development of dynamic capabilities.

'... what is important is that everyone would learn new things in their field, whether it be new SOLAS standards, or product features of the rivals or clients' changing needs. I do not think we need any blue-prints. Nobody has time to read them, let alone to write. Communication is important. This is the best blue-print. You never can document people's tacit knowledge, but you can learn it by communicating with them. I do not want to say that we do not learn. We do learn enormously, but there is no any formal process in place. Those who do not learn new things are replaced by those who do. The changes are happening too fast and we do not have resources to write instructions for every possible occasion. It is necessary to understand very quickly what is happening and how we should act. At the same time, if you continuously do not try to learn new things and to notice what is changing, you will be the last one who will realize that the market has changed...' (top manager B).

This way of thinking might be caused by the fact that the shipbuilding industry in recent years has faced really very dramatic changes since 70s when there was a shift of merchant ship-building from Europe to Asia.

Marioff's top executive (A) was particularly concerned about these changes. For him it was obvious that the shipbuilding industry would never look the same as it was just a year ago:

> 'we have to look for something new: for new clients, for new markets. We know that cruise shipbuilding was a very good market for us. But most likely we will never enjoy the monopoly in this market anymore. We should be satisfied with the fact that at least we had this privilege to supply our system to 100% of the newbuilding cruise ships for quite long time; but at the same time we have to forget this time. It's gone and we urgently need a new technology for a new market. We need to look everywhere, even among our former clients. Our former clients, whom we forgot or just did not pay enough attention to, because we were too busy with cruise ships newbuilding orders, might prove again to be a profitable niche' (top manager A).

The above statement gives an indication that with increasing change in the shipbuilding industry Marioff started to stress more attention on learning and discovering new opportunities.

Actually, there was a big difference in approach to dynamic capabilities at the initial stage of the company's development compared to the later approach (after Marioff was sold). The main difference is that in the beginning, their capacity to sense and seize new business opportunities lay in the distinctive capacity of the founder of the company which helped to create a new business. In contrast, when Marioff was sold, this capacity almost disappeared and the company started to rely on more traditional processes of the development of dynamic capabilities, such as substantial R&D activities.

Regarding the process of new knowledge creation, a top manager (B) said

> 'here, at Marioff, we do not have any formal procedures. Of course, we have safety training, corporate ethic training etc, but not any training on how to learn new things. We just communicate a lot. If we do an experiment and it works, the information will be spread to everybody very quickly. We just try hard to employ and keep personnel who have a high level of interpersonal skills, are self motivated, have curiosity for new things and would be capable of learning quickly enough. In my opinion, the most

important element is that a person is open-minded and bold enough to question all: company routines, product, suppliers, everything'.

A middle manager (D) also emphasized the need for people with 'propellers on their heads' keeping in mind people with innovative technical ideas.

Actually, once again, the aforementioned interview supported the ideas described in the sections of top management and entrepreneurial middle management, namely, that the company became very successful because the organizational environment continuously nourishes innovative personnel. Marioff's routines in general supported initiatives and fast implementation of the best ones.

It can also be concluded that one of the biggest issues in organizational learning and in development of entrepreneurial attitude is the capacity to forget the past. This goes along with the literature review (Hedberg et al., 1976; Weick, 1995)., which says firms must be capable of forgetting their past, breaking rules and traditions, and increasing variation in the service of architectural and/or radical innovation or in meeting the needs of new customer segments (Hedberg et al., 1976; Weick, 1995). It also seems that Marioff became concerned about finding new niches and developing new technologies at the critical times, when things became difficult.

At the same time, this capacity cannot be developed very quickly when the pace of market change and a need for exploration learning increase. Indeed, the need for such capacity increases in increasingly changing environment, but the Marioff case demonstrates that this capacity was developed since the foundation of the company.

As the current study took place during a global economic crisis (2008-2009), almost every top-manager mentioned the need for shifting thinking. Executives became much more concerned about companies' readiness to change and learn new things, rather than in operational effectiveness. Distinctively, Marioff always had routines, such as involving clients into experiments, extensive communication among employees, aimed at sharing new ideas and experience which triggered exploration learning and entrepreneurial behaviour equally.

Although organizational routines which trigger development of adaptive capabilities have a fundamental nature and cannot be easily and quickly adapted to all market changes, some routines such as sharing of new ideas, extensive communication, experiments, continuous exploration of new markets can be developed over a long period of time and play a vital role in company adaptation, when the time comes. It was found that Marioff developed different dynamic capabilities compared to large companies. For instance, Marioff did not consider such dynamic capabilities as spin-offs or knowledge codification as relevant, although the literature (Molemaker, 2009; Zahra, 1999; McGrath, 1995) highlights these dynamic capabilities as very important. In contrast, when the interviewees were asked how they developed a capacity to explore new horizons, other dynamic capabilities were emphasized, namely 'democratic dialogues', internationalization and collaboration with large companies.

5.4.1. 'Democratic dialogs'

Having the main focus on the process of development of dynamic capabilities, the interviews led to an understanding of how the entrepreneurial behaviour was enhanced in the organization.

When interviewees acknowledged the importance of entrepreneurial management on every organizational level, they were asked to describe routines they had which would develop the entrepreneurial management.

As previously mentioned, the founder and ex-president of Marioff did not mention that there were any formal procedures to develop entrepreneurial middle managers. Although he did not specifically highlight the importance of entrepreneurial middle management, he asserted that

> 'at Marioff we always discussed new ideas. Often we discussed new ideas just having coffee together. It is not necessary to have any formal meetings for that. If someone had some good ideas, he or she was always very welcome to discuss them. As I said before many of my employees had been working for me already long time they knew

me well and they did not have any problems to pop up in my office if they had something smart to say...' (G. Sundholm).

Another top executive (B) emphasized the following aspects of the development of entrepreneurial spirit in the organization:

> 'In order to have an entrepreneurial attitude, there should be a feeling of security. The employees should be reassured that they would not be punished if they take a calculated, reasonable risk and they will not succeed'.

He continued,

> '... but then we need to analyze what went wrong. A feedback is important, particularly a feedback of our clients. As they say, it is finally not so important what ten people around the table think; it is important what our clients think. The best way to receive the clients' feedback is to involve them in experimentation. You know that Marioff's success was started by an experiment which actually was initiated by our first client. When a client is deeply involved in experimentation, then they are interested that we should succeed. They do not just give you their feedback; they participate in product development by themselves. This is particularly important for the initial stage of product development... . All these are invisible, but this what I call right organizational culture and no any blue-prints of course...'.

This interview led to acknowledgment of a process of creation of an organizational culture which triggers the development of dynamic capabilities at Marioff. Although it was not stated directly, it can be concluded that freedom to take risk at every organizational level was crucial in Marioff's success story.

These above mentioned ideas were further elaborated on by another former top manager (F):

> 'the most important is when a sale manager comes next day after a meeting with a customer and tells that the customer needs this and that, senior management would be capable to make a decision immediately and a product development department would start working on new development the very same day. This is a great advantage of a small- and medium-sized company, that it is not constrained by bureaucratic

routines. Of course, as sales managers, as a senior manager, as product developers should have an entrepreneurial approach...'.

These statements together with other interviews, justify the fact that although Marioff did not have any deliberate routines, development of dynamic capabilities was encouraged by entrepreneurial top management and organizational culture, which triggered development of entrepreneurial middle management.

The interviews led to the conclusion that entrepreneurial behaviour of middle management was not taught. Marioff's employees never had formal training on how to be more entrepreneurial or just proactive. On the other hand, undoubtedly those employees who communicated often with their very entrepreneurial founder-owner, were substantially influenced by him. This communication, be it emails or discussion in the corridor or formal meetings, forced employees to start thinking like their entrepreneurial owner. Consciously and unconsciously they learned from him. Some middle managers admitted that it was very useful to work for such a genius manager. As one of the top managers (B) said:

> 'you learn much more during a year working for such talented owner than during two-year of MBA study even in a very prestigious university'.

The conclusion can be drawn that although Marioff did not have any formal training, education of how to think like an entrepreneurial owner was a continuous process.

Despite this continuous informal process of educating Marioff's personnel to think like an entrepreneur, entrepreneurial behaviour always was a main criterion for new personnel employment. A middle manager (D) said that

> 'I would never work for flabby giants where nothing new ever happens. These people have a passion for development; they cannot just automatically do the very same job from year to year without having a chance to develop something by themselves'.

> 'At Marioff we had a free rain to do what we thought was right for the company within the limits of our responsibilities. As long as our work brings profit to the company we did not have a boss who would say 'do this and that'. We worked with a feeling that it was our company' (Middle manager D).

This highlights that most of Marioff's employees were entrepreneurs by nature. Having entrepreneurial people onboard, they were put in conditions where they would have opportunities to communicate a lot. For example every Friday at 2 p.m., the company serves to all employees free cakes. This gives a chance to the employees to meet each other and to have a conversation in relaxed atmosphere.

Another routine which should be mention is a company's canteen. There is a large canteen in the headquarters of Marioff, where the majority of the employees have their lunches bringing food from home. The canteen is equipped with a sophisticated hot drinks machine and a number of different marine and technology magazines.

Several site observations showed that it's common that employees had longish discussions during their lunches and coffee-brakes. It's remarkable that not only middle managers or 'line' employees can be met in the canteen; top managers are the regular visits there as well.

There is still a possibility that aforementioned routines were not a part of a deliberate strategy of its top management, but the general culture in Finnish companies. As described in the literature review, Finnish companies in general have a more unstructured management than most Western companies, with an Anglo-Saxon culture. Very often, management in Finnish companies is based on so called 'democratic dialogs' (Kalliola & et al., 2006). This does not necessarily imply a weak style among Finnish executives, but it does mean that the general culture of the nation often gives rise to less official discussions among different layers of organizational hierarchy. Actually, many Finnish companies have almost no hierarchy at all. Again, to a great extent this is determined by the political environment of the country which was led over many decades by social democrats. It is embedded in the minds of Finns since childhood, that the president of the country is just another citizen, who has the same rights, same human habits and a summer cottage next to famous to children Muumi-land, but just a different job.

Although Marioff had a very authoritarian founder he tried his best to create an organization without official hierarchy. In their case the researcher came to an interesting conclusion. The role of CEO/managing directors of the company was and still remains to interpret owners' wishes in such a way that they would be understandable and acceptable (from a cultural point

of view) for the employees. Top management of Marioff seems to understand the importance of an entrepreneurial approach in middle management, they know that Finns are known for their inventions and a key for success is (not to simplifying it too much, but still) to keep open to any discussions about organizational culture which might facilitate the entrepreneurial behaviour of its middle managers.

Thus, it was found that,

firstly, entrepreneurial behaviour was developed not by any formal training, but by an unstructured process of communication.

Secondly, the company created conditions where employees could exchange their ideas in relaxed atmosphere.

Thirdly, receiving feedback from the clients was considered as a primer source of ideas

Finally, the informal organizational structure was created to enhance ideas sharing among employees.

Therefore, it was concluded that in order to develop dynamic capabilities, firms should develop limited structure around responsibilities and priorities, extensive communication and freedom to create improvisation within current projects enhance development of dynamic capabilities in stable environments.

5.4.2. Internationalization

According to the literature review (Prange, 2011; Freemantle, 2009; Zhu, 2007; Arndt, 2011; Pitelis, 2010; Romme, 2010; Dunning, 2010) internationalization can be another avenue in how to develop an adaptive approach in a company. Based on Freemantle (2009) 'people who never move outside their village during their lives develop what is called 'village mentality'. They have limited horizons and see things only in terms of what is happening in their village'. The same applies to companies who operate only in one location, serve the very same limited amount of clients over a long period of time.

Marioff is definitely an excellent example of a 'born global' company. Starting almost from the day of foundation, Marioff has a global approach. First of all, they understood that their clients were spread around the world.

> '... shipping is an international business and it is inevitable to have an international approach.' (middle manager G).

> '... the first client was a Swedish ship-owner and installation had to take place in Yugoslavia... . Another one of the first clients was a Malaysian ship-owner (Star Cruises) and installation took place during a voyage from Finland to Malaysia. At the same time we had an order from a German shipyard Lloyd Weft.' (G. Sundholm).

They also understood that people like to order from companies close to them, who are reachable and speak their native language. That's why Marioff established a chain of sales and/or project management offices around the world, employing local professionals. In the areas where business perspectives more dubious or where business culture was too different and making business was too risky, Marioff found reliable local representatives who arranged the whole spectre of services for Marioff, starting from sales and marketing and finishing with a 'turn-key' project management.

Although production of key components of the Hi-Fog systems was always based in Finland, close to Marioff's headquarters, Marioff never chose their partners only from Finland. The main criterion always was that a chosen partner had to be the best in their field of activity

(the conclusion is made based on the analysis of Marioff's suppliers and subcontractors conducting during interviews and site observations).

Many Marioff's employees had to go on business trips abroad quite often and 'such international trips colours a person, adding a third dimension of deep and vivid experience to a knowledge that comprises no more than an outline sketch in the minds of those who have never travelled' (Freemantle, 2009).

Thus, Marioff achieved an international presence (having offices and agents in 44 countries) and recognition, outperforming many rivals who operated only locally.

According to a top manager B the employees never had doubts that internationalization in the early stage brings a lot of advantages:

> '... geographical diversification is very important, you are getting less dependable. To have a global presence puts you on the same level as large companies, but it involves higher risks as well. It is just necessary to decide how far you are ready to go: 500km from your office, 1000km or 5000km. If you sell your product to Australia and then receive a guarantee claim, you should be ready to go there at least to make sure that a guarantee claim is not a fake. Marioff would never have become a market leader, if we had not gone global early...' (top manager B).

Marioff not only went global by themselves, but they also stimulated their partners to develop themselves so that they could serve Marioff's needs where it was necessary. This strategy led to intensive development of Marioff's key cooperation partners. Those who did not want to invest and to take a risk of internationalization together with Marioff, were substituted with more loyal and bold suppliers (the samples were clearly identified during interviews but were asked to keep as a commercial secret). As a consequence, not only was Marioff very well globally positioned at all the times, but also their key partners gained international recognition and became stronger together with Marioff.

> '... by being present and having projects in many different countries, Marioff not only achieved diversification and consequently mitigated the risk to be dependable on one client or one region, but developed essential adaptation skills. In every country we

had to go through a process of local approvals, learn local habits and find local suppliers... ' (top manager B).

The process of internationalization was not only to establish new offices in different countries employing local employees, but to involve employees from different locations in extensive travelling among the site offices and places of project execution. During every project, a number of employees (top executives, area sales manager, project managers, site managers and commissioning engineers) were involved in direct communication with clients. These people have a chance to travel to the working sites and to get deep insights into the clients' opinions.

Form early stages of the development of Marioff areas sales managers were responsible for at least two areas, where one area was in Europe and another in other continents. One area sales manager was responsible for France and China, another for Italy, Russia and Middle East. The idea of giving to one person such diversified portfolio of clients is to offer a possibility to learn different perspectives, different ways of the system implementation, different standards.

Despite the fact that there was no any written procedure of such internationalization, the process was obviously in place.

Another example of the fact that the company paid attention to learning through internationalization is the relatively common rotation of employees between different positions (from a project manager position in the marine department to a project manager position in the land department, from project management in Finland to sales management in Italy, from project management in Finland to after sales in USA etc).

Although interviewees did not specify this process, much evidence was found during site observations.

Actually, the process of learning through internationalization starts with the recruitment process. It is remarkable that Marioff's employees (over 200 people) possess a sound working knowledge of English. Many speak both Finnish and Swedish. This fact gives the managers of the company the possibility to involve any employees in international projects.

As previously mentioned, the process of recruitment is an essential part of the development of dynamic capabilities at Marioff. Started by Göran Sundholm, very high criteria are applied for selections of employees, including imbedded entrepreneurial behaviour, deep technical knowledge, to be fluent in English.

Thus, it can be concluded that

Firstly, Marioff has never considered themselves as a pure Finnish company, rather they positioned themselves as a global company.

Secondly, this might be one of the main reasons why Marioff by the end of 2000s achieved a 100% presence in the cruise shipbuilding market and why even during the latest world economic crisis they seem to adapt faster than the rest.

Finally, the Marioff case demonstrates that to go global is not only a privilege of large companies but an avenue for a small and medium-sized firm towards achieving a leading position.

Therefore, is can be concluded that learning through internationalization is an effective tool to develop dynamic capabilities for small and medium-sized enterprises.

5.4.2. Collaboration between small and medium-sized firms with large enterprises

Although internationalization, as stated before, is a great source of new knowledge creation and consequently of dynamic capabilities, in practice it might be too difficult for small and medium-sized companies to go global, let alone to 'be born global'.

Very often, SMEs seem to be under-financed and despite all the advantages, internationalization might be just too costly for them.

As discussed in the previous chapter, the top management of Marioff support the idea that in order to become sustainably successful, a company should provide services or products which can be rendered in different countries. They do have a notion of geographical diversification, but they realise that companies can continuously face different obstacles which do not allow them to go further.

The literature review (Branzei & Vertinsky, 2003; Cegarra-Navarro, 2005; Meyer, 2004; Hitt et al., 2005; Chan & Montealegre, 2007; Mosey, 2005) suggests having collaboration with large companies substantially increases chances of SMEs to succeed. As stated in the literature review, being owned or partly owned by a large company often opens an access to a pool of finances and consequently gives unique possibilities for innovative company's development. Pros and cons of this were described in the literature review section, but this idea did not find any great support in the case-study company.

Mr. Göran Sundholm conceded the problem of SMEs, but he expressed a clear opinion that to be owned by a large company or to go too early for IPO can harm even more than being underfinanced.

Marioff Corporation was also sold to a large USA headquartered corporate. It is still difficult to judge whether it would have been different if Marioff had remained a privately owned company, but soon after Marioff was sold, they lost their unprecedented 100% position in the cruise ships newbuilding market.

Marioff's founder asserted:

'you can see what happened with GS Hydro (the first company founded by Mr. Göran Sundholm, which was also sold to a large company), what happened with Marioff. Large companies hit organizations and a new hierarchy comes with their bosses and suddenly profit disappeared, and motivation to work as well.'

Despite the patently negative attitude of the founder of Marioff to collaborate with large companies, the researcher found that first orders Marioff received from large fully-fledged companies like Star Cruises, Lloyd Werft and other solid clients. Although Marioff was initially financed by its founder, one of the advantages of working with large companies was receiving prepayment, which also contributed to the finance of the start-up.

Although Marioff was never dependent on any large company until it was sold and collaboration with any particular large company did not contribute to Marioff's success, it still may be concluded that having solid clients in the beginning of the development of Marioff was important for further recognition of the system.

Thus, Marioff's case provides a strong support to the research proposition that different set of dynamic capabilities is need for SMEs comparing to MNEs..

5.5. A summary of evidences by propositions

proposition	evidence from the case	conclusion
Proposition 1. The potential gain from dynamic capabilities is significant even in stable environments	You have to be very dynamic in product development. Sometimes, you sell the product what you even do not have. Then you are forced to do it. In product development, if you do not have any timeframe, it takes forever. Large companies spend for new product development years and years and spend millions. But if you have a ship, which must leave in three months and you need to have your system approved, then you are in different situation'. 'It's very important for small and medium-sized companies to have continuous product development. Every five years you need to have new products otherwise the competition will catch you up. It is like mobile phones. You do not sell a five –year-old phone today'. 'During stable times most of the companies are getting flabby and reluctant to change. This is a unique possibility to come up with innovative technology and to create market's demand before rivals wake up to respond'. 'It's too late to try to learn how to change when a need to change is already there. When the pace of change is terrific, only those companies which learn how to be agile in good time before' can survive.	supported

Proposition 2. The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels	It is inevitable and very important that the power in a small and medium-sized company should be concentrated in one pair of hands, because a small company usually does not have financial resources to make many mistakes'. 'It was definitely him (CEO), who saw new business opportunities and knew how to commercialize these opportunities'. 'A manager (top manager, CEO) should be an entrepreneur. Mr Sundholm worked almost alone when he established Marioff Corporation Oy'. 'If we did not have entrepreneurial top management, innovative ideas of our front line employees would never be implemented, which would definitely cause a lot of frustration'. 'Here, at Marioff we are continuously looking for new ideas how to improve ourselves. We keep weekly meetings with key employees where we discuss how to improve our efficiency and how to make the system's performance even better. Those, who interact with clients tell us about their concerns and client's vision how Marioff should improve. We follow our founder's motto, that first we should identify a customer's problem and then we should find a solution to this problem. This is actually how Marioff works on every level'. 'As long as our work brings profit to the company we did not have a boss who would say 'do this and that'. We worked with a feeling that it was our company'. 'The whole organization should be like a family. In my companies, we never had any huge hierarchies. Everybody knows each other and we are talking with each other on all levels. We do not have any big bosses. We are all important - we are just doing different things'.	partly-supported. entrepreneurial top management plays the most crucial role in development of dynamic capabilities in the initial stage

Proposition 3. Low-cost experimentations trigger development of dynamic capabilities	The best way to manage this risk is to have a low-cost trial'. 'This kind of searches for new business areas is not for faint-hearted managers, but these trials ultimately trigger development. Of course, if new experiments end up with losses, it requires a fine-grained investigation, but conclusions can significantly solidify company's capabilities'. 'To a great extent our success depends on certification of the product. We can start product sales for new applications only if we have proved by a number of real tests that the system will perform flawlessly. That's why we always make a number of tests before we start offer the system to a new market segment. Although HI-FOG was a recognized fire-extinguishing system around the world, it was not so well-known for the Russian navy. Despite the fact that HI-FOG was tested in all possible conditions and almost on all type of ships, Russian authorities required us to make a lot of tests in their presence. This allowed us to prove to them that the system's performance was really as great as we described. Without tests we could not achieve anything in this market. during the tests you can learn more about your potential clients and their needs. Product tests is a part of product development process. If you see that the clients expect something different you still have not spent a lot of money for the final product development and you can make changes immediately'. 'It is finally not so important what ten people around the table think; important is what our clients think. The best way to receive the clients' feedback is to involve them into experimentation. You know, that Marioff's success was started by an experiment, which actually was initiated by our first client. When a client is deeply involved in experimentation, then they are interested that we should succeed'.	supported

Proposition 4. A different set of dynamic capabilities is needed for SMEs compared to MNEs	Geographical diversification is very important, you become less dependent . Having a global presence puts you on the same level as large companies, but it involves higher risks as well'. 'Marioff would never have become a market leader, if we had not gone global early'.	supported

5.6. Conclusions

Marioff Corporation Oy is one of the brightest examples of innovative and entrepreneurial management at all levels.

What makes them different is the entrepreneurial spirit of almost every company employee. Today, the business model of Marioff is very complex, where their product is only one part of it. Innovative strategy implementation sets Marioff apart in a highly competitive sector.

Marioff definitely owes its initial success to its founder, who is a good mixture of an inventor and a businessman, but the credit for its enduring success after the founder sold the company should be given to the entrepreneurial middle management of the company.

The Marioff success was achieved to a great extent due to deliberate actions to create new practice. They focused their cognitive skills on markets which had not existed before. Although Marioff was established during times when the shipbuilding industry was stable, they managed to create turbulence in the market.

Although the evidence of the case study shows that Marioff has never considered any market condition as a stable one, no robust evidence was found to support the notion that dynamic capabilities learned and developed during a stable environment led to superior performance under conditions of environmental volatility. Actually, this is the great distinction of Marioff, They did not wait for external environment to start to change, and they did their best to create a change. Although this process is well studied and described (like by Blue Ocean Strategy of Kim & Mauborgne, 2005, and similar), the researcher came to the conclusion that Marioff not only created a change but through continuous practice of change they were much better prepared to weather any storm (created by other companies or by any external forces beyond their influence).

However, the case study also shows that the gain from deliberate actions to change the market conditions was significant even in a stable environment. During very stable (for shipbuilding) times, Marioff created a niche for their product and for some timeslot enjoyed a

status of monopoly. Therefore, the focus of the study was to understand the main aspects and processes of development of dynamic capabilities in a stable environment.

It was found that the top management played the vital role in the development of dynamic capabilities. Entrepreneurial skills of the founder of Marioff were the critical factor in the company's success in the initial development stage. It was concluded that the extent of development of dynamic capabilities depended on the extent of entrepreneurship of the top management. Once again, it can be concluded that in small and medium-sized companies, particularly in the beginning, the extent of development of dynamic capabilities depends on the extent of entrepreneurship of its senior manager, but as a company grows other dynamic capabilities should also be well-developed in order to weather unpredictable and radical changes.

One such crucial dynamic capability was low-cost experiments. Low-cost experiments became a key factor in Marioff's success story. Experiments were conducted, not only with the purpose of product development, but also by involving its clientele in the process of experimentation, Marioff made a fine-grained investigation into its clients' needs. Experiments were a means to develop Marioff's capabilities for foreseeing the future, the capacity for sensing new opportunities. Although in the case of Marioff, undoubtedly Mr. Göran Sundholm has inherent entrepreneurial abilities, these abilities and capacities of his core teams to sense and seize new opportunities were enhanced during a big number of experiments.

The case study of Marioff supported the research proposition that low-cost experimentations at small and medium-sized firms may substitute extensive R&D activities at large enterprises and trigger development of dynamic capabilities. However, the case study led to the conclusion that experimentations offer a unique possibility to develop entrepreneurial skills of top and middle management, and to develop entrepreneurial attitude in a company in general. Thus, experiments were one of the core dynamic capabilities at Marioff.

To conduct experiments continuously, Marioff needed entrepreneurial behaviour on every managerial level. Although Marioff's founder did not acknowledge the importance of entrepreneurial middle management, deliberately or subconsciously he continuously

practiced processes to employ and select only the most entrepreneurial people, those who are continuously looking for new ideas and better ways of implementation.

The middle management was empowered to make any operational decisions and to behave as entrepreneurially as the company owners, while top management focused on anticipating future perspectives. Key employees had weekly meetings to discuss new trends and possibilities, how to improve the efficiency and how to make the system's performance even better. Thus, its was concluded that the extent of development of dynamic capabilities depends on entrepreneurship of management at all levels.

Although the business culture, which incorporated trust in the workplace, motivated people to change and generally enhances a perceptions shift (which itself can be considered as a dynamic capability), agility was essential. Business routines guaranteed that all critical decisions would be made quickly enough. This requires that business leaders would have broad-based thinking, act quickly and trust their middle management. Therefore, Marioff's case-study highlights the importance of real-time decision-making as reacting in the real time was always at the heart of the company.

The case study of Marioff demonstrates that capacities of top management to sense and seize new opportunities, low-cost experiments and entrepreneurial behaviour on every managerial level, are the main elements of the development of dynamic capabilities in a stable environment. This can be achieved by creating such routines which would trigger the development of exploration learning while having a reduced structure around responsibilities and priorities thereby providing the freedom to create improvisation.

Marioff is an excellent example of a 'born global' company. Marioff achieved an international presence and recognition, outperforming many rivals who operated only locally. Marioff's global approach provided a unique possibility to its employees to gain international experience within short time period.

Although the literature reviews suggests that cooperation between small and medium-sized firms with large companies helps SMEs at the initial stage of company development and that sometimes just by following large companies business development plans, it helps to recognize new opportunities and the biggest advantage of such cooperation is in seizing new

opportunities, Marioff's case study has not supported these assumptions. On contrary, Marioff's founder's strong opinion is that it is better not to have too close relations with any of large companies, which can limit independence and sometimes negate some of the other inherent advantages of SMEs. Thus, it was concluded that a different set of dynamic capabilities is needed for SMEs comparing to MNEs.

A summary of conclusions is presented in the table below, where specific dynamic capabilities and processes of their emergence found at Marioff are highlighted.

Table 7. Dynamic capabilities and processes of their emergence at Marioff.

Dynamic capability	Processes of creation or/and development
Entrepreneurial management at all levels	1. Recruitment of the entrepreneurial top management 2. Continuous selection of the 'best people' 3. Keeping the 'key team' always together 4. Recruitment of the entrepreneurial middle management 5. Selecting among already employed employees the most entrepreneurial 6. Continuous exploration of new markets 7. Communication with clients (and potential clients) to get ideas of their needs and to receive feedback at early stages 8. Fast decision making process 9. Information sharing by extensive formal and informal communication
Low-cost experiments	1. Conducting of a great number of experiments at all the times 2. Involving clients in experiments to learn their opinion immediately
'Democratic dialogs'	1. Weekly meetings with key employees to discuss how to improve the efficiency and how to make the system's performance even better 2. Extensive communication of employees among themselves (e.x. Friday 2 p.m. cakes, canteen) with the purpose of sharing ideas and experience
Internationalization	1. Involvement of employees from different locations in extensive travelling among the site offices and places of project execution. 2. Diversified portfolio of clients offers a possibility to learn different perspectives, different ways of the system implementation, different standards 3. Frequent rotation of employees between different positions

Chapter 6. Analysis. Merima Oy

In this chapter the researcher will examine the propositions presented in the conceptual framework by the Merima Oy case-study.

6.1. Stability and dynamism in the environment

Proposition 1: ***The potential gain from dynamic capabilities is significant even in stable environments.***

Merima is another good example of incredible success as much as in stable as in dynamic times. Merima did not offer new innovative products. What they did was to come up with an innovative business model - the 'turn-key' shipbuilding concept- which in subcontracting almost did not exist when Merima came into the market. They were the company which actually created this concept in Finland and later it spread to other cruise ships building countries as well.

> 'at the end of the 1980's , Merima was the first and the only company who offered 'turn-key' outfitting services to the shipyard (Wärtsila Marine in Helsinki - Arctec today) and Masa Yards in Turku at that time - STX Europe today). Nowadays, 70% of all outfitting works are done based on 'turn-key' subcontract. The shipyard makes only steelworks, constructing hulls.' (a middle manager B).

One of the founders and the CEO of Merima, Mr. Mauri Mäkiranta was modest when describing the time when Merima was created.

> 'we just decided to do what we knew best, the interior outfitting of ships' (M. Mäkiranta).

In fact, Merima's business idea was not just to offer interior outfitting of passenger and cruise ships. The founders had an understanding of how complex passenger and cruise ships newbuilding was becoming. The ship-owners demanded more and more sophisticated interiors as much as for public areas as for accommodation areas. In the case of

accommodation areas, the interior solutions were duplicated from cabin to cabin. The variation was very limited. In the case of high-end public areas like theatres, promenades, casinos and main dining rooms, interior solutions were unique and could not be replicated on other ships.

> 'Logistics is very important in public areas. There is hundreds of thousands of items on the list and the shipyard understood how big a mess could be created if something were missing' (a middle manager C).

The complexity of public areas was a problem for the Finnish shipyards. The founders of Merima were the first to recognize the business opportunity this presented. As professionals in the field, they created a company to solve the problem for the shipyard. They started to offer a complex interior outfitting solution, meaning one specifically tailored to the shipyard service of 'turn-key' outfitting. 'Turn-key' interior outfitting meant taking responsibility for providing a complete interior outfitting of a specific area on a newbuilding, providing all necessary drawings, materials and installation.

It was a perfect solution for the shipyard. The task of the shipyard was only to prepare a contract and hand over responsibilities for the most complex areas onboard to Merima.

This represented a sea-change in the whole industry, which was created to a great extent by Merima. The shipyards started the practice of ordering public areas as a 'turn-key' outfitting contract. In these circumstances, the rivals had to adapt and started to offer 'turn-key' interior outfitting services as well or they would be unable to compete. As creator of the new concept, Merima enjoyed the best and the most prestigious opportunities.

Before rivals even managed to adapt to the changed shipbuilding conditions in Finland, at the beginning of 90s Merima started to offer not only interior outfitting on a 'turn-key' basis, but also design and production of marine furniture and furniture accessories

> 'The difference was that before, all the decorative elements were made onboard the ship, because every part was tailor-made. Merima started to do prefabrication of all the furniture and their parts. This substantially reduced the time needed to spend

onboard and consequently it led to the reduction of the entire shipbuilding process' (a middle manager B).

This was another significant change in the shipbuilding process created by Merima. The shipyards benefited from a reduced lead time and consequently became more competitive on the global market and Merima enjoyed a healthy order-book. If outfitting on a 'turn-key' basis was relatively easy for competitors to copy, then interiors prefabrication, sometimes in full scale, required much more effort. It required elements such as large production facilities, state-of-the-art production technologies, 3D modelling, and a sophisticated logistics system.

'The logistics system was the element which was particularly difficult for rivals to replicate' (a middle manager C).

'Materials logistics for cruise ship newbuilding is a very complex process. It demands very good planning and on-time deliveries and production. Materials logistics is still one of main competitive advantages of Merima' (Kettunen, 2010).

Unlike other major parts of shipbuilding contractors in Finland, Merima always paid a lot of attention to their Enterprise Resource Planning system. The fact that just at the time when Finnish shipbuilding order-books were almost zero, Merima employed one more top manager, highlights the importance of planning and control systems for Merima.

Thus, during over twenty five years Merima created a few new trends in the market which had not existed before and as a consequence became a market leader in Europe in the market of cruise and passenger ships public areas interior outfitting.

In 2010 Merima Oy faced the situation that there were no new orders for cruise ships in Finland. The top management of the company had already anticipated this situation a few years earlier and forced themselves and their team to move out from their comfort zone, working only in Finland, and to take also newbuilding projects in Germany at Meyer Werft. This was a geographical diversification, which allowed the company to survive in the second part of 2010 and guarantee a sufficient work load for a couple of upcoming years (in the middle of 2011, Merima had orders in Germany for the next three years).

By deciding to start working at Meyer Werft in an unknown environment with a new client after almost fifteen years of operation mainly only in Finland with actually the very same clientele, Merima definitely took a significant risk.

> 'Not many employees wanted to move to Germany for long or short time. Some of them had to quit, others had to adapt' (Mauri Mäkiranta, Merima CEO)

If Merima hadn't done this at that time, it would have been far too late in 2010. There simply wouldn't have been sufficient time to adapt and for shifting from one business environment to another.

> 'Indeed, the shipbuilding industry is relatively stable, which means that changes do not happen often in the market. At the same time, if a change happens, usually it is rapid and radical, consequently there is not much time for evaluation of different alternatives. It is necessary to act very quickly and those who were not willing and capable to adapt quickly had to be replaced' (Mauri Mäkiranta).

Small companies with entrepreneurial management where almost everything depends on one person can rely on ad-hoc problem solving techniques, while in already medium-sized companies, top management responsibility is to prepare their companies for possible rapid and radical changes in good time. The senior executives were asked if there was any other possibility to acquire entrepreneurial staff who would be ready for rapid and radical changes at any moment, rather than just by replacing employees who may have served a company many years and have simply become reluctant to change.

> 'When a market change has arrived, it is already too late to start training the personnel, and then the role of a company leader is just to adapt using all possible means.
>
> .... I do not know any methods which can be used in order to teach personnel in a short time to learn new approaches which would develop their innovative thinking' (Mauri Mäkiranta).

At Merima, most of the employees were moved from their comfort zones long before the actual changes happened in the industry. This was the deliberate process which the management used to train their personnel to adapt quickly when necessary.

People were rotated between the projects, there were significant changes in the areas of their responsibility and of course geographical relocations.

First of all, they got used to adaptation, and then they started to learn how to be more innovative in order to be successful in new conditions.

Although Merima top management left the impression that this kind of preparation of their team for possible changes was done more subconsciously since they did not appear to have any deliberate program of staff development in this direction, they nevertheless did it continuously over a long period of time.

As mentioned before, already at the beginning of 2000s, Merima Oy had decided to penetrate the cruise ships refurbishment/revitalization market. It is remarkable that they continued to develop these activities even during the boom in cruise shipbuilding in 2007-2008, while many other Finnish companies just enjoyed the influx of huge newbuilding orders in Finland. Already at that time, Merima Oy were training their employees to work oversees on very demanding and very intensive projects.

> 'If on cruise ship newbuilding projects the outfitting of an average size restaurant takes approximately ten months, then for refurbishment of the same restaurant only a few weeks can be allowed. In practice, this means that a company should have a very different organizational culture and process to manage these jobs. Similarly, with the people who are involved in the process. Usually project managers who are responsible for refurbishment projects should be very dynamic people, ready to work very long days and make decisions quickly and independently. There is no time for mistakes on refurbishment projects. Every detail up to the last bolt should be preplanned half a year before' (the managing director).
>
> 'In contrast, on newbuilding projects, people work in more calm surroundings where there is always time for considerations and discussions. There is no such stressful

pressure of deadlines. Every evening people can go home, while during refurbishment projects people are accommodated onboard for the whole duration of a project' (Mauri Mäkiranta).

At the end of 2010, when Finnish shipbuilding companies realized that there were no new cruise ship newbuilding orders and those single orders for ferry boats were far too small to provide enough workload even to a third of the companies, they started to look for alternative markets. Refurbishment became the main market focus of their interest, but they were absolutely not ready to take up this challenge. Some companies did not have staff capable of communicating in English, others did not have staff that would be willing to travel overseas, and some did not have the right mentality and organizational processes to do refurbishment projects. They were just not ready for such dramatic changes.

In contrast, Merima was prepared for it by constant practising of changes. Consequently, Merima did not have many competitors among other Finnish companies who would be ready enough to compete with them overseas on refurbishment projects.

Despite the fact that Merima senior executives were prudent enough to foresee possible radical changes a long time in advance and made the necessary preparations to train their personnel for changes by building in routines which would support organizational changes, they still had to admit that not all the personnel were ready to change when the time arrived.

> 'What actually happened was that Merima's personnel was divided into three categories: those who worked on newbuilding projects only in Finland, those who worked only on refurbishment projects overseas and those who worked on newbuilding projects both in Finland and in Germany. Eventually, those who worked only on newbuilding projects in Finland could barely manage to adapt to the market change, which demanded working overseas. Consequently, many of them were laid off. Those who were used to work either in Finland or in Germany could successfully continue on German newbuilding projects. And those who were involved in refurbishment projects overseas, remained the most amenable to any changes. They were ready and well trained to work as on refurbishment projects, as on newbuilding projects overseas, let alone in Finland. The nature of refurbishment projects demands

high preparedness for any unexpected situation, in which people have to act very quickly, at the same time they are used to anticipating what uncertainty could bring' (the managing director).

Thus, it can be concluded from Merima's examples of development of dynamic capabilities in stable environment provide the evidence to support the research proposition that the potential gain from dynamic capabilities is significant even in stable environments.

6.2. Entrepreneurial processes

Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.***

Merima was established and developed by a charismatic leader with strong entrepreneurial skills.

Over 25 years he has run the company by himself, daily participating in making all important decisions, defining a company strategy and predicting future market trends.

> 'It is the main task of a business leader to foresee the future trends in the market, to predict and correctly identify preferences of the clients, to define the potential of markets or groups of target clients' (Mauri Mäkiranta, one of the founders of Merima Oy).

During interviews he has emphasized several times that it is a role of the company leader to sense new opportunities and make decisions about which of them should be implemented in a company. He expressed an idea that the highest executive should be almost free from everyday's' routines. A CEO should be busy full time with identifying and developing future business directions. He doubted that anyone else in his company has relevant skills to anticipate potential trends in the industry, let alone alternative industries or markets.

The managing director of Merima (NB! Merima has an employed managing director. Mr. Mäkiranta, who holds the position of CEO), asserted:

> 'It is a pure job of the high executive to deal with business development. Middle management should only concentrate on their direct tasks. All the initiatives regarding possible new directions of the business development should move from up to down. Middle managers are expected to have an innovative approach when they are ordered to implement some changes'.

It can be clearly identified that at Merima the CEO plays a role of a visionary, while the managing director manages daily routines and middle manages fulfil functional tasks – a classical up-down structural organization.

It seems that middle managers support the organizational structure and the roles they should play. One of the middle managers (A) said:

> 'The bosses are paid to have skills to define what the company should offer, to whom and how and to have a notion about when some changes are needed'.

It is remarkable that the CEO of Merima does not only have a notion of the importance to have skills to foresee the future, but he has a clear vision of how to develop the capacity to sense new opportunities.

> 'It is important to spend a lot of time with clients, to speak to them; they know better what they need. It is much more important to spend time with clients rather than with colleagues. I believe that a CEO should spent most of his working time outside with clients rather than in the office. Indeed, often the clients do not know how the service should look, but communication with them this is like food for new ideas ... .
>
> ... to be in contact with other companies in the industry is also important. This gives a good indication about where the industry is moving and what can be expected next.' (Mauri Mäkiranta).

Despite the fact that at Merima the capacity to sense and seize new opportunities is a privilege of the CEO only, it can be concluded that Merima's CEO deliberately develops its capacity. As aforementioned, the process of its development consists of extensive communication with current and potential clients as well as with other companies operating in the industry. It is remarkable how great attention Merima's CEO pays to developing this capability, to be always one step in front of the rivals, to be the first who sees possible market changes and of course to be the first to react accordingly.

It is also notable that although in September 2011 Merima employed a Development Manager (exactly at the time when the second Genesis-type ultra large cruise ship was delivered and Merima did not have any new shipbuilding orders in Finland and in general the Finnish shipbuilding industry prospects were very gloomy), he was assigned to work with internal aspects of business development such as the internal process development covering quality assurance systems and enterprise resources planning system. This means that the CEO

still retains for himself the function of predicting future business trends and defining the company business development directions.

Of course, it is not enough only to have the capacity to predict future business trends and to sense new business opportunities, it is also important to have enough analytical and entrepreneurial skills to understand what these market trends mean in the context of the industry and of the company and how to glean from this knowledge (the capacity to seize new opportunities). According to Teece (2009) a dynamic capability is a combination of the capacities to sense new opportunities, to seize new opportunities and to reconfigure the resources.

As the managing director's main responsibility is the daily operations of the company, it is concluded that the CEO plays not only a role of a visionary but also of the only strategist in the company defining how to seize new opportunities and how to reconfigure the resources.

The top management of Merima did not admit the crucial importance of entrepreneurship in middle management and strictly following orders and instructions by middle management was more valuable from their point of view, but some clients of Merima particularly highlighted that the innovative approach of people who conduct projects is one of the main requirements for a supplier.

> 'The management might have very good ideas and the best intentions, but for us it is important that those people who are on the front site should have the right entrepreneurial approach as well. In other words, that they should come up with new ideas, because they know very well all the details of the projects. It is very important for us that our contractors' employees should tell us that if we at the shipyard change some processes or, for instance, substitute this type of pipe connections for a different one, they might accrue savings on outfitting time or savings on materials. I believe that directors of companies are unlikely to come up with ideas like that... . It is very sad for us if our contractors do not come up with anything new and just passively fulfil their contractual obligations' (Client A).

Another client from the same company added:

> 'A supplier should continuously come up with innovative ideas, extending their added-value regardless of whether we require it now or not. And, in order to achieve this, a company should consist only of very entrepreneurial people who are hungry for new achievements' (Client B).

Although according to the top executives of Merima, they do not have any process to develop entrepreneurial behaviour in their middle management, they continuously do it in essence by giving a free rein on how to implement company's strategy.

> 'They do not instruct us in detail about what and how should tasks be done. They limit their intervention to a detailed description of a company's strategy, new business development directions, and market trends' (middle manager D).

This means that at Merima, the top management empowers their middle management to act using their own discretion based on their experiences of working with clients, clients' new ideas, expectations and requirements. Of course, it is very important to give a free rein and empower the right people. As the CEO of Merima put it:

> 'It is very difficult to change people or to develop the right attitude. The only thing you can do is to fire those who do not have the required characteristics and employ those who have'.

Merima's CEO highlighted that firing existing employees and hiring new might be the best way to introduce a more innovative and entrepreneurial spirit into a company.

> 'It is very complicated to explain to those employees who were the main resources for a company's success during many years that the market situation is changing and that the product, service, proceeds and a segment of clients which contributed to a large proportion of company's profits must be dramatically and rapidly changed. Furthermore, that during upcoming years there should be an absolutely different client structure, other products and services in order to keep at least the same sales and profit levels, let alone further growth and that despite the fact that there is still demand for the company's existing offerings from the very same clients who were

loyal to the company over many years, it is very urgent to develop something absolutely new' (Mauri Mäkiranta).

Merima's top executives explained that those employees can be very reluctant to embrace dramatic changes, arguing that their current activities still bring profit to the company or that this service is a core competence of the company. They might be right today, especially if upcoming changes on the market are not obvious, but their reluctance to change can result in a loss of competitiveness of the company in the future.

The situation is reinforced by the fact that, as stated before, very often these employees have been very valuable to the company and, of course, highly respected by the senior management. Even more, they might have significant power and influence on top management and if executives, despite often possessing highly-developed capacity to sense new opportunities, are not very confident in predicting possible market changes and thus the need for a company to change, they might be dissuaded from changing at all or wait until the trend of the market has been definitively confirmed.

'Such waiting can be very dangerous because a company is losing momentum, a chance to be a pioneer in being the first to address the latest needs of the clients and often even creating a market trend' (the managing director).

Thus, it can be concluded that on many occasions it is not enough just to create an organizational culture to foster an entrepreneurial attitude, it is crucially important to have on board people who have the potential to develop their innovative thinking. In order to achieve this, the top management should have the capacity to select those people who could be capable of doing their job entrepreneurially and innovatively.

It can be concluded that recruitment, testing, selecting and then empowering the entrepreneurial middle managers is the process which is used at Merima to seize their new business opportunities.

Taking into consideration Merima's success and remarkable development from a start-up to becoming the market leader (at least in Finland), Merima's CEO undoubtedly has innate entrepreneurial and managerial abilities which were the main reason for the success in the

past and continue to keep the company successful even today (during a deep downturn in the shipbuilding industry in Europe). At the same time, entrepreneurial middle management allowed Merima to achieve a leading position in the market. This leads to the conclusion that in order to develop dynamic capabilities, firms should develop entrepreneurial behaviour at every managerial level.

6.3. Readiness to experiment

Proposition 3: ***Low-cost experimentations trigger development of dynamic capabilities.***

This research proposition may sound very obvious, but then why do companies not always practice it? According to Merima's CEO:

> 'the biggest problem in the development of dynamic organization is its own success. In other words, companies may become 'victims of their own success' by 'resting on their laurels'. With success, companies become too passive, stuck in the business activities they are engaged in at any given time. They become very reluctant to change anything significantly. Often, executives ask themselves why they should undertake risk if business seems to be stable for several upcoming years'.

Although Merima also enjoyed a leading position during many years, they did not allow themselves to rest on their laurels. They always kept in mind that there are many competitors in the market who work very hard to take over their position.

> 'The fact that any company has a leading position today does not mean that they can keep it tomorrow. A company should continuously experiment with some new innovative ideas. In the case of their success, it will lead to additional competitive advantages' (the managing director).

The nature of business of Merima might not require extensive R&D activities at all. The main field of activity is project management of very complex projects. Merima substituted R&D, but conducting experiments in different fields: innovative ways of marine interior production, new material suppliers from Far-East, new procedures of project management, a new system of supply-chain management, new project follow-up system and a number of others (based on the interviews with a middle manager A).

> 'Not all of these initiatives were very successful of course, but there is always something new happening here. From time to time our boss gathers all project and production managers together and tells us about his new ideas and what he wants us to change' (middle manager A).

Although it is rather difficult to distinguish those initiatives which led to extraordinary business results, it can nevertheless be concluded that the new initiatives were already important to keep agility of the organization.

> 'Due to its relevantly small size, we could not afford to have its own R&D department, but we always could afford to try new ideas' (the managing director).

This ultimately led to more and more superior performance.

> 'Merima's management refused even to bid for a Viking Line project (in 2011 STX Europe in Finland had only one newbuilding order, for a relatively small size passenger ship, which was awarded according to rumours on a very low price/bid), because all Finnish companies were fighting for it. Yes, we have not got anything on this project, the first one after probably twenty years, but in my opinion, by doing this, Merima's management wanted to demonstrate as much to STX as to ourselves that we were not dependable on the Finnish market only and that we were capable to be competitive abroad as well' (middle manager B).

The conclusion to be drawn from this is that even a very successful business from time to time 'needs to fail'. At Merima, top executives strategically planned to fail for the sake of a failure. Experiments are the best way to keep companies in good shape to remain adaptive and not too overconfident, in other words, learning by 'trial and error'.

Therefore, the Merima's case support the research proposition that low-cost experimentations at small and medium-sized firms may substitute extensive R&D activities at large enterprises and trigger development of dynamic capabilities

6.4. The relevance of size to dynamic capabilities

Proposition 4: ***Different set of dynamic capabilities is needed for SMEs comparing to MNEs.***

It was found that at Merima there are no processes such as knowledge codification, nor any standardization in general.

> 'Although we have a company book, we just do not have time to write a blue-print for every situation. Anyway, every time we face different kind of changes... .
>
> ... blueprints switch employees to autopilot.' (the managing director)

As mentioned in previous sections, the process of knowledge sharing is conducted by general meetings of middle managers with top management, where top management explains their vision and middle managers share their opinions and give a feedback from the field.

According to Merima's CEO

> 'in order to combat any change the most important is to get an insight into client's expectations, possible future trends. All these can be obtained via continuous interconnection with others. It is always important to know the latest changes in marine legislation, to have deep knowledge of competitors, to know whether the current or potential clients are satisfied with their existing suppliers or whether there is a possibility to offer an alternative. The objective of all these interactions is to create new knowledge'.

On completion of every project, Merima organises a gathering in a sauna or bawling club to celebrate the project, to share experiences, feedbacks, to make informal analyses. All relevant employees, suppliers, subcontractors and clients are invited.

> 'The purpose of such gatherings is not to do rigour analyses of projects, but to strengthen teamwork' (middle manager C).

At Merima, every project's results are also formally analysed within the project team and top management. Learned lessons are shared on the general meetings of all employees. Merima had a few initiatives to invite suppliers and subcontractors for brainstorming, but only one meeting within five years took place. It remained unclear why these kinds of meetings were not continued. Probably, it was caused by overconfidence of Merima's top executives or due to a dearth of initiatives from suppliers and subcontractors.

Although some processes of knowledge codification and sharing were found at Merima, they focused more on other processes of the development of dynamic capabilities, such as extensive communication, internationalization and cooperation with large companies.

6.4.1. 'Democratic dialogs'

Merima, as probably many other Finnish companies, is a relatively good example of a company with limited structure around responsibilities.

Despite the fact that Merima has general functional instructions for almost every key position, the processes are not described in detail. There is a lot of room left for independence and creative thinking.

Merima does not organize much training for their personnel. It is supposed that knowledge would filter down from senior employees to new employees.

> 'Regarding sharing knowledge, we have dedicated meetings at least twice per year, but actually it happens much more often after every project, we analyze and edit our company book' (the managing director).

Indeed, Merima has a company book, but the main focus there is on company values, rather than specific instructions.

> 'I do not believe that there should be cross functional knowledge exchange, even among different project managers. It is easier to find new people than try to change the mentality of the existing ones. When we employ new project managers, they work

together with more experienced ones and then, having acquired the knowledge, they work independently' (Mauri Mäkiranta).

The CEO of the company has no compunctions about emphasizing that any employee will be fired if he or she does not meet his expectations and cannot adapt to the changing conditions. Of course, in this case, the recruitment process is crucial for the company. Merima should be capable of employing new valuable employees quickly enough, to share knowledge with them and select the brightest ones.

The importance of the recruitment process has already been mentioned in previous sections, but this researcher came to the conclusion that it is not the recruitment process *per se* which is essential here, but the way the CEO expectations are presented.

Interviews with several middle managers led to another conclusion. The policy of the CEO to replace anyone who does not meet new requirements, is widely spread among employees. They know that they have to be adaptable and this comprehension of the fact that personal development stagnation leads to unemployment, essentially stimulates middle managers to be proactive.

'if I know that some of my colleagues are engaged in new projects, I always wonder is there anything new I can learn.

... we have open space office and of course we communicate during coffee breaks a lot' (middle manager D).

General meetings twice per year are only needed to remind employees what their CEO expects from them, to tell them about possible changes in the industry and what they might expect, to inform about new business directions in the company and share new strategic goals. The rest is left for employees to decide what they have to change in their daily activities to meet these new requirements and to be prepared for possible changes. As previously mentioned, those who do not make right conclusions will be replaced by people with more adaptable mindsets.

Although the interviews with middle managers and several site observations provide evidence to support the research proposition, due to the fact that the high executives did not

highlight the importance of 'democratic dialogues' it can be concluded that Merima's case partly supports the research proposition that limited structure around responsibilities and priorities, extensive communication and freedom to create improvisation within current projects enhance development of dynamic capabilities in stable environments.

It is worth mentioning that Finnish business culture envisages democratic management and freedom to express controversial opinions. Due to the fact that the CEO of Merima has a very autocratic management style, the managing director, who is much younger, and who has also been working for Merima many years and has much calmer temperament, plays an intermediate role between the CEO and other employees.

6.4.2. Internationalization

Merima realized the importance of internationalization in the early stages of their development, opening a branch office in US and actively promoting their services in Germany.

> 'If shipbuilding in Finland collapses, we will go there where ships are built' (middle manager D).

> 'We are ready to be there where the ships are constructed or where they operate. Already now a remarkable part of Merima's revenue comes from cruise ships refit and refurbishment' (middle manager D).

Although the level of internationalization remains lower than in similar Finnish companies operating in the same field of activity, like ALMACO Group Oy, the management of Merima actively continues development of the company's global presence.

Merima CEO Mauri Mäkiranta emphasized the importance of not being trapped in one geographical location:

> 'we have established an office in China, as we believe that Chine will take over shipbuilding from South Korea'.

As stated previously, the management of Merima admitted that they had been also seduced by the giddy success of the Finnish cruise shipbuilding industry during the last decade. Their personnel became more passive and reluctant to change, but the management has not lost the notion of the importance of internationalization.

> 'Of course, it would be better for us, if shipbuilding would remain in Finland, but we are facing the fact that shipbuilding continues to move to Asia and we have to be ready for this change' (CEO).

As soon as the first signs of a possible downturn in the Finnish shipbuilding industry appeared on the horizon, Merima immediately resumed activities to enhance their presence on the global market.

> 'When we started the company in 1987, there were over two dozen shipyards in Finland. Now the industry has become more international and the shipbuilding cluster as well' (CEO).

The vital difference with Merima when compared to many other companies in the field is that Merima have always had some leanings towards internationalization, even during a period of influx of shipbuilding projects in Finland.

> 'Already in late 2000s we operated in Finland, Germany, USA and Russia' (the managing director).

When the rough times arrived, they had already established a platform for changing their strategy immediately, as they were already well-prepared. Merima had an office in the US and experience in the cruise ship refurbishment business, a well-established reputation in the German shipbuilding industry and a bit of experience in land projects. Consequently, when they had to start looking for new clients abroad more actively they didn't need to start from zero and were in a much more competitive position than many of their rivals.

Already even during stable times they could foresee that the market situation could dramatically change very soon, so they started to investigate what could be the next area and where they could continue receiving orders. Merima spent a lot of resources on penetrating the Asian market during stable times while they were flourishing in the native market. By the

time the market situation forced the company to change, they already knew where to go next and had already established a representative office in China.

Although the company has done a lot during stable times to get ready for rapid and radical changes, their policy of internationalization was more developed on a corporate level, rather than an individual level. Some interviewed employees mentioned that they had little sense that Merima was an international company, considering their employer more as a strong player in the local market. That's why when the Finnish shipbuilding industry started shrinking, they could not see how their skills can be continually valuable for Merima since they could not see further perspectives in Merima abroad and as a result many of them had to leave.

Being a project management company, Merima strongly depends on a cluster of suppliers & subcontractors who possess the same value for the company as their own employees. Many of these partners were small companies and fully dependent on Merima's orders. When it became obvious that there would not be the same workload in Finland in the nearest future, they also lost their loyalty to Merima and started looking for new strategic partners.

As mentioned in a previous section, at the most devastating period of the Finnish shipbuilding industry at the end of 2010, when the last cruise ship was delivered and there were no new orders on the horizon, Merima decided to invite for a meeting the whole cluster of the partners and employees in order to discuss possible perspectives and how to survive the crisis in terms of lack of immediate orders. At the last moment, and to the great surprise of many invited companies, the meeting was cancelled. During an interview with the senior executive it was concluded that Merima had decided that it was easier to find new partners and new employees with whom they could continue their internationalization strategies than to try to convince the old ones.

As described in the previous sections, the process of development of entrepreneurial management included rotation of the personnel between the projects, including geographical projects, it was not found that internationalization at Merima was done with the specific purpose of the development of existing human resources. It was done rather with the purpose of discerning the needs, requirements and regulations of foreign clients. It is natural that

people prefer to work close to their homes, but prudent management at Merima realized at an early stage that they could never guarantee an infinite flow of local orders.

Although learning through internationalization is an effective tool to develop dynamic capabilities for small and medium-sized enterprises, it may be concluded that internationalization seems to be indicative of a dynamic capability *per se*; and it is not a privilege of large companies only.

6.4.2. Collaboration between small and medium-sized firms with large enterprises

Merima is a good example of collaboration between small and large companies. At the end of 80s, when the company was just established, Merima faced the same difficulties as most of start-ups – a lack of references and it is very difficult to build a reputation in the shipbuilding industry. Fortunately, the company had experienced and entrepreneurial owners-managers, professional employees and what most importantly, a large client, whose business was brisk at that time, but who was starting to face a problem. As previously mentioned, the ship-owners demanded more and more sophisticated interiors, which ultimately led to substantially more complex project management.

Merima owners (ex-employees of Wärtsilä Marine) identified a business opportunity and created their own company.

> 'It is important to have a direct contact with the shipyard. It is very difficult to change them. First they have to change, then we have to adapt. But it is very important to know what they want in good time in advance' (CEO).

During several years Merima closely cooperated with almost the only client (their former employer), who became a strategic client and cooperation partner. Growth and the innovative approach of Merima continuously offered their strategic client rare, valuable and almost irreplaceable added-value.

It is well known that the success of Finnish cruise ships building yards is based on their close cooperative with partners such as Merima, which is considered an integrated part of the Finnish shipbuilding cluster.

Although Merima's strategic client did not directly contribute to Merima's internationalization, through projects entrusted to Merima over several years, Merima had a chance to build necessary for geographical diversification references, skills and financial base.

Merima's executives were reluctant to speak about their main client STX Europe - the Finnish shipyard which was their first and main client since the establishment of the company. Naturally, they did not want to reveal any commercially sensitive information. Nevertheless, it is a fact that Wärtsilä Marine was the first and the only client of Merima for several years. Close cooperation with this client enabled Merima to build up a crucial reputation, to get references and to establish a solid financial platform.

Merima's examples of early collaboration with a large established company, internationalization and extensive communication are those dynamic capabilities which led Merima to superior performance and consequently to the competitive advantages.

The aforementioned findings support the research proposition that different set of dynamic capabilities is needed for SMEs comparing to MNEs.

6.5. A summary of evidence by propositions

proposition	evidence from the case	conclusion
Proposition 1. The potential gain from dynamic capabilities is significant even in stable environments	at the end of 80's Merima was the first and the only company who offered the shipyard 'turn-key' outfitting services The difference was that before all the decorative elements were made onboard of the ship, because every part was tailor-made. Merima started to do prefabrication of all the furniture and their parts. This substantially reduced time needed onboard and consequently it led to the streamlining of the entire shipbuilding process Indeed, the shipbuilding industry is relatively stable, which means that changes do not happen often in the market. At the same time, if a change happens, usually it is rapid and radical so consequently there is not much time for evaluation of different alternatives. It is necessary to act very quickly and those who were not willing and capable of adapting quickly had to be replaced. When a market change has arrived, it is already too late to start training the personnel, and then the role of a company leader is just to adapt using all possible means. Those who were involved in refurbishment projects overseas, remained the most sustainable to any changes. They were ready and well trained to work as on refurbishment projects, as on newbuilding projects overseas, let alone in Finland.	supported

Proposition 2. The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels	It is the main task of a business leader to foresee the future trends in the market, to predict and correctly identify preferences of the clients, to define the potential of markets or groups of target clients. The bosses are paid to have skills to define what the company should offer, to whom and how and to have notions about when some changes are needed. A supplier should continuously come up with innovative ideas, extending their added-value regardless of whether we require it now or not. And in order to achieve this, a company should consist only of very entrepreneurial people who are hungry for new achievements. They do not instruct us in detail about what and how should tasks be done. They limit their intervention to a detailed description of a company's strategy, new business development directions, and market trends. it is very difficult to change people or to develop the right attitude. The only thing you can do is to fire those who do not have the required characteristics and employ those who have.	supported
Proposition 3. Low-cost experimentations trigger development of dynamic capabilities	Due to its relevantly small size, we could not afford to have our own R&D department, but we always could afford to try new ideas Not all of these initiatives were very successful of course, but there is always something new happening here	partly supported
Proposition 4. A different set of dynamic capabilities is needed for SMEs compared to MNEs.	We are ready to be there where the ships are constructed or where they operate. Of course, it would be better for us if shipbuilding would remain in Finland, but we are facing the fact that shipbuilding continues to move to Asia and we have to be ready for this change. It is important to have a direct contact with the shipyard. It is very difficult to change them. First they have to change, then we have to adapt. But it is very important to know what they want in good time in advance. Wärtsilä Marine was the first and the only client of Merima for several years. Close cooperation with this client enabled Merima to build up a crucial reputation, to get references and to establish a solid financial platform (www.merima.fi , accessed 10.05.2012).	supported

6.6. Conclusions

For over twenty five years Merima created a few new trends in the Finnish shipbuilding market which had not existed before and as a consequence became a market leader in Europe in the market for cruise and passenger ships public areas interior outfitting. At Merima's initiative, a 'turn-key' concept was born, which is widely used at European shipyards nowadays. As a pioneer of the idea, Merima created rules which rivals had to accept or quit the market. For years, Merima managed to reinvent their business model, adding different innovative features, such as prefabrication of marine interiors, 3D modelling and full scale mock-ups. In the context of a stable shipbuilding industry with traditional processes, the aforementioned represented a radical change. Despite the fact that Merima created a few market changes by themselves, they had to adapt to changes created by the market as well.

Although according to Merima executives they did not have any formal program on how to prepare their employees for quick adaptation to possible market changes, those employees who were trained (rotated among projects and geographically) during stable times for changes, managed to adapt successfully to rapid and radical changes in the industry.

The CEO of Merima retains the capability to sense and seize new business opportunities as his own privilege. He has freed himself from the daily routines by having in the company a managing director who is responsible for daily issues, a development manager whose responsibilities are the development of internal processes, and a business partner who is working as a technical director and responsible for new building in Finland. Merima's CEO realizes the great importance of the capacity to foresee the future trends and deliberately working on the development of this capacity by extensive communication with clients and other companies in the industry.

Undoubtedly, the CEO has been playing the key role in the company's success by developing dynamic capabilities in his own capacity to sense and seize new business opportunities. This capacity is one of the most important dynamic capabilities at Merima. It is also rather unique in small companies that a CEO has the full focus of predicting future trends rather than on daily operations. Although the case provides a strong support to the research proposition that the extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels, it might be also considered that the fact that the key dynamic

capability is concentrated in one person only is an inherent weakness. This fact may question the long-term sustainability of Merima without their CEO. The entrepreneurial skills of the CEO are the prevailing dynamic capability at Merima, which of course is vital for a start-up or is natural for a small company, but when the company is growing, other dynamic capabilities might be very important as well.

The top management of Merima did not admit the crucial importance of entrepreneurship in middle management and strictly following orders and instructions by middle management was considered more valuable from their point of view. Despite this fact, it was found that Merima's top executive still expect their middle management to act entrepreneurially as the top management give them license to act using their own discretion. The top management limits their intervention to a detailed description of a company's strategy, new business development directions, and market trends. It was also found that instead of developing entrepreneurship in their middle management, the top executives rely more on the recruiting process of people with the required characteristics. The philosophy of the CEO of Merima to replace anyone who does not meet new requirements, is widely spread among employees. The comprehension of the fact that personal development stagnation leads to unemployment, essentially stimulates middle managers to be proactive.

It may be also concluded that a very successful business from time to time 'needs to fail'. Top executives should strategically plan to fail for the sake of a failure. Low-cost experiments are the best way to keep companies in good shape to remain adaptive and not overconfident, in other words, learning by 'trial and error'.

Although Merima employed a development manager, the privilege of identifying new business opportunities is retained for the CEO. Merima has not done any spin-offs and the top executives do not appreciate spin-offs or separate business development units what is a common dynamic capability at MNEs.

Finnish business culture in general is very innovative and envisages democratic management and freedom to express potentially controversial opinions. Due to the fact that the CEO of Merima has a very autocratic management style, the managing director, who is much

younger, and has been also working for Merima many years and has a much calmer temperament , plays an intermediate role between the CEO and other employees.

Although Merima was not born global, they realized the importance of internationalization in the early stages of their development, opening a branch office in US, Asia and Germany. The process of development of entrepreneurial management included rotation of the personnel between the projects, including geographical projects, but it was not found that internationalization at Merima was done with the purpose of development of existing human resources. It was done rather with the purpose of discerning the needs, requirements and regulations of foreign clients and the most important aspect was to be known to foreign clients.

Over a period of several years, Merima closely cooperated with almost the only client who became a strategic cooperation partner. Growth and innovative approach of Merima continuously offered their strategic client rare, valuable and almost impossible to substitute added-value. Merima's example of early collaboration with a large established company demonstrates great possibilities of how a small company can become one of the marker leaders within a relatively short timeframe.

The following dynamic capabilities and processes of their emergence can be summarized in the table below:

Table 8. Dynamic capabilities and processes of their emergence at Merima.

Dynamic capability	*Processes of creation or/and development*
Entrepreneurial management at all levels (having the capability to sense and seize business trends)	1. Extensive communication with the existing and potential clients 2. Extensive communication with other companies operating in the industry 3. To free the CEO from everyday routines and to focus on identifying new business opportunities 4. Recruitment, testing and selecting 5. Empowering the entrepreneurial middle managers 6. External extensive communication to get an insight into clients' expectations, possible future trends 7. Unofficial gatherings on completion of every project (employees, suppliers, subcontractors, clients) 8. Formal analyses on completion of every project (project team and top management) 9. General meetings of employees with the top executives
Capability of the organization to change according to market changes	1. Rotation of personnel among project 2. Rotation of the personnel geographically
Low-cost experiments	1. Continuous implementation of new ideas 2. Frequent meetings where CEO shares his new ideas
'Democratic dialogs'	1. Extensive communication among employees 2. Periodical general meetings with all employees 3. In-depth analyses of the projects 4. Periodical messages from the CEO that it is necessary to be adaptable and to find ways to learn new things
Internationalization	1. Learning of needs, requirements and regulations of foreign clients 2. To become known to foreign client

Chapter 7. Analysis. Lloyd Werft Bremerhaven GmbH

In this chapter, the researcher will examine the propositions presented in the conceptual framework by Lloyd Werft Bremerhaven GmbH (Lloyd Werft) case-study.

7.1. Stability and dynamism in the environment

Proposition 1: ***The potential gain from dynamic capabilities is significant even in stable environments.***

During its long history, Lloyd Werft has faced several rapid and radical changes. Most of these changes were related to the macro changes in the industry such as:

- constant gross of ships tonnage. This means that ship repair yards have to enlarge their facilities;
- globalization. As a consequence container ships started to be built in the Far-East;
- economy cycles.

While a few changes were related to micro factors such as:

- insolvency of the parent company;
- changes in the ownership.

The chairman of the board, Mr. Werner Lüken, who served for a long time as the CEO of the company and is a former partner, considers the changes in the ownership as the most crucial changes the ship yard has ever faced.

> 'The changes within Lloyd Weft, which is over 150 years, during my time started in 1996, when our previous parent company Bremen Wulkan went bankrupt. This was

for the company the biggest change during the last decades, because we went to insolvency and went through the insolvency, and we managed it' (W. Lüken).

First of all, it was an unexpected change. Suddenly, after belonging to a big company, Lloyd Werft was left on its own.

'After 1996 we became very successful but it was not easy due to the fact that we did not have bank facilities. However, we built up our good relationship with customers and it helped us overcome difficulties with the banks' (top executive A).

The top management of Lloyd Werft several times emphasised the importance of good and close relations with the clientele. This gave Lloyd Werft many advantages and what was the most important the knowledge of potential changes in the industry.

Despite its success, the management of the company could foresee a big change coming – a substantial growth of the number of Post-Panamax ships (ships that do not fall within the size limits for ships travelling through the Panama Canal).

'Eight years ago we could establish a dry dock to cover 90% of world fleet size wise. But nowadays, it went down to 60%. So we saw a development of the fleet and we said we had to build a bigger dock for Post Panamax ships' (W.Lüken).

In order to facilitate the enlargement of the facilities the shipyard needed an investor.

'It was very important for us to get an investor, because it helped us to get a loan. At the beginning the cooperation with an investor as a major shareholder was very successful. They said that we knew what to do and they would not interfere in the business. We were very successful during these years. Then after 5 years they wanted to get out. But they had some funny ideas about the price and he could not find any interesting party. They were eager to get out and cooperation became difficult. The management had to step in again and bought the shares from the finance investor. We did it partly with our own cash and partly with loans from banks. They said ok, your ideas and vision is good, we can give you a loan what you have to pay in certain period of time. It was another step, when we - the managers were the owners of the company and we were very successful' (top executive A).

It was the time when the management of the shipyard realized that their dock facilities had become too small for the growing fleet of Post-Panamax ships.

> 'We tried to find finances for this dock, but then a global crises came and we stopped all activates' (top executive A).

It is important to highlight that despite the fact that the management of Lloyd Werft had a very prudent vision of the impending changes and notion that they needed to enlarge their facilities, a lack of finances did not allow them to do it.

At the same time, a lack of finances conversely helped the shipyard not to be trapped like most of the shipyard which mainly hope only for facilities-based advantages. By coming through different internal financial crises, Lloyd Werft was forced to focus on competence-based advantages rather than on facilities-based advantages.

As mentioned before, close relations with their clients became a dynamic capability, which helped Lloyd Werft to survive during difficult times.

> 'In shipbuilding and conversion it is very important to understand what our customers want and react accordingly. Also it is important to know new laws and regulations come into force and understand which business opportunities they bring together. We have to tell the ship-owners, 'yes, we can help the problem, we can solve it, we can do it this way' (top executive B).

Good relations with the clients helped Lloyd Werft to build necessary and rare competences which distinguished the shipyard from the rest.

Despite the fact that Lloyd Werft could not build a dock which was necessary to meet a growing demand of Post-Panamax ships, the company focused on competence-based advantages which guaranteed enduring success for many years. These competences were focused on very complex projects. In the earlier stages of cruise industry development Lloyd Werft managed to identify substantial change approaching the industry. Namely, the ships not only became bigger but cruise and passenger ships became much more sophisticated.

Failing to raise finances to acquire bigger docks, Lloyd Werft reconsidered its strategy to focus only on complex sophisticated projects preferably related to cruise or passenger ships. The necessary competences were developed. The main focus shifted from docks to project management.

> 'We are better than our competitors because we have better project management team. We still do training for our project managers, they go to seminars, but this is also a support. The main experience comes from experience' (top executive A).

The shipyard started to develop capabilities which were not available before:

> 'In previous times we sent from here 300 workers to Jacksonville to do conversions there during very short time (3 weeks max)' (top executive B).

Although at the end of 90s there was still a decade to go before the real boom in the cruise industry started, Lloyd Werft actively and constantly developed new experts.

> 'We had a very high level of apprentices, 10% of our employees. They started from bottom and became engineers. They were studying and coming back. They were knowledgeable and skilled people. Now at the shipyard, here are a lot of people what are working 4th of 5th generation' (top executive A).

As the consequence of these initiatives, at the middle of 2000s, Lloyd Werft was recognized as 'the best in the class' (Mr. Peter Fetten, Carnival Corporation, VP Refit).

At the middle of 2000s, the situation of the cruise industry was that a number of cruise companies started to build new ships. All the large cruise companies had on order at least 3-4 new cruise ships. Smaller cruise companies could not find a shipyard which would have available capacities to take an order.

Those companies were forced to choose another avenue and instead of building new cruise ships, they rebuilt existing ones. For these companies, Lloyd Weft was a preferable choice, because by that time Lloyd Werft had all necessary relevant capabilities and a solid reference list.

'In 1996, when the parent company went bust, there was a ship 70% done, but the ship could not been finished, we convinced Costa that Lloyd Werft can finish it. We also convinced NCL to complete another ship. After it they ordered the second ship from us and we built the whole ship from A to Z. The hull was built at another shipyard, but we did the engineering and completion. Such projects make work interesting for our employees. Therefore they are excited. And these projects were financially successfully' (top executive A).

It's rather difficult to evaluate with a high level of reliability, whether these projects were taken on deliberately to develop capabilities of revitalization and completion of cruise ships or whether it was in the context of an inevitable fight for survival. Anyway, these new capabilities developed during relatively stable times became crucial in several years when the market started to boom and enabled Lloyd Werft to take a leading position in the cruise ships refit and conversion market. Therefore, it can be concluded that the case supports the research proposition that the potential gain from dynamic capabilities is significant even in stable environments.

7.2. Entrepreneurial processes

Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.***

A top executive of Lloyd Werft emphasized that the biggest challenge for a growing successful business is to remain flexible and open to any changes. This can be guaranteed if an organization and a company's senior executive remains flexible. By flexibility, among other aspects it meant a fast decision-making process and a short distance between decision maker and actual decision implementers. It is important that a decision maker should have the possibility to explain in detail directly to final implementers what his expectations are and what exactly should be done. A top executive of Lloyd Werft emphasized that fast decision making is the main advantage of SMEs over large companies.

The executives of Lloyd Werft asserted that the development of dynamic capabilities is the task of top managements. They should be capable of predicting future trends in the market and in order to be able to do it, the management should have very good relationship with clients.

> 'To foresee the future, first of all we (senior managers, CEO) discuss with our customers. Marketing and sales here at Lloyd Werft is in the hand of the CEO. He has a direct contact with the customers and he hears the wishes of the customers directly. Then he discusses with the middle management once a week every Monday morning at 8 o'clock. They are sitting together and discussing these things (actual things and future perspectives). We have sales managers, but they work directly under CEO' (top executive B).

Thus, extensive communication with customers and further discussion of new ideas internally can be identified as a process of the development of dynamic capabilities to sense and seize new opportunities.

Despite the fact that at Lloyd Werft future perspectives are discussed with middle managers on a regular basis, the top management still retains the function of identifying new business opportunities for themselves.

'Anticipating the future is not the main task of the middle managers. They should more concentrate on day to day work, how they can streamline day to day work. This is more beneficial. But if they have ideas, they are very welcome. And indeed, very often, they come up with innovative ideas' (top executive A).

Mr. Werner Lüken, who served as a CEO during 23 years (retired in 2010), led his company through several radical changes and Lloyd Werft has gained an excellent reputation for ship repairs, complex ship conversions, particularly in the cruise liner segment, and highly demanding new construction (http://www.cruiseindustrynews.com, Lloyd Werft's Werner Lüken to Retire. 11.05.2012).

He has adjusted his staffing level to the market level, reducing from 1000 employees to 400 employees; substantially increasing the number of loyal clients enabling Lloyd Werft to survive over two insolvencies in the wake of the collapse of the then parent company. He has built up the organization which is capable of undertaking very complex refits of luxury cruise ships, started a new business direction like ship completion, he established a big shipyard at Bahamas amongst other projects.

The great advantage of Lloyd Werft over their competitors was the capacity of their CEO to see the future trends in good time before and, being a flexible company, not only to adapt to upcoming changes, but even to shape the market. For instance, Lloyd Werft was one of the first who started to practice the business model to send 'flying squads' to any part of the world where their clients needed to do a refit. Today, this business model is well used by several cruise companies.

Lloyd Werft has just a few processes to develop entrepreneurial spirit in the company. One of them is weekly meetings between top management and middle management in order to discuss latest news, innovative ideas, taken initiatives and their results.

A senior executive (A) of Lloyd Werft described the process of middle management feedback they had had in their company for many years:

'At least once per week we organize a meeting, where top and middle managers participate together. One of the objectives for these meetings is to get ideas from

middle managers about possible future changes in preferences of the clients. Very often middle managers have more direct contact with clients than top management. Middle managers can receive frank and open information about what clients like and what they would like to be changed. But of course the task of defining future trends is in the hands of top management'.

Although Lloyd Werft's middle management has a free rein in most operational decision making processes, top management's role is to guarantee that middle management does not get stuck in routine activities and that there should be a balance between operational and analytical work.

'We do not have any R&D department, but we have innovative people in different positions. They have good ideas, they come to the management asking can we do this, can we do that. This makes the life and working together very interesting in the yard.

Five years ago we were approached by an interesting party to build a mega yacht. It was the first time in the life of the company that we had built a mega yacht and we delivered it last year. When this guy came to me, I told that the risk is too high for me. I brought this idea to the team, and everyone was very excited to build a mega yacht. We did not have any experience, but the advantage of our repair shipyard is that all our workers are much more flexible than in newbuilding yard' (top manager A).

The importance of flexibility was emphasized several times and that the innovative and entrepreneurial people are those who are not stuck with any processes. The most important thing is that they should be very skilled and flexible.

Despite the fact that top managers have highlighted the importance of flexibility of their middle managers, the attitude to the entrepreneurship of their middle managers was relatively conservative. They still believed that the most important initiatives should come from the top managers and the key role of middle management is to implement the new ideas flawlessly.

Middle managers are not recruited based on their entrepreneurial skills, but rather on their professional skills.

Although the interviews with the top management gave an impression that the importance of the entrepreneurial middle management is relatively diminished, the regular processes of feedback and several times emphasized importance of flexibility provides enough support to the research proposition that the extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.

7.3. Readiness to experiment

Proposition 3: ***Low-cost experimentations trigger development of dynamic capabilities.***

In 2003, Lloyd Werft got an order for completion of a newbuilding of a cruise ship named m/s Pride of America, which belonged to Norwegian Cruise Line. This was some kind of an experiment in the sense that the shipyard, which operated in the ship repair and conversion business, had entered into newbuilding. Although it was not a cheap experiment (it cost €300m in revenue), it was not a complete newbuilding either. The hull was built by another shipyard.

> 'This experiment initially began very rapidly and very promisingly, but due to a violent storm that lashed Bremerhaven (a city in Northern Germany, where the shipyard is located), the vessel was seriously damaged. Because of this accident, the shipyard came into very dire straits – indeed its survival was at stake. The otherwise flourishing yard had to declare itself insolvent' (top manager A).

However, finally the company survived and successfully delivered the vessel.

> 'It was a happy end not least because despite this disaster (which attracted considerable attention in the global shipping industry) the customers that had been served so dutifully over the previous years or decades lost none of their confidence in the capabilities of Lloyd Werft' (top manager A).

This experiment led to receiving another big order, the first order for construction of a mega yacht, which was delivered at the beginning of 2009 and which was another big experiment for the shipyard.

> 'The mega yacht had to be built in a house. We built a cover. Project managers were relocated to the middle of the shipyard. Although the mage yacht was a one-off contract, now we are receiving a lot of inquiries to build a mega yacht and we are selecting' (top manager A).

Although the experiment to build a mega yacht was financially successful for Lloyd Werft, the management decided to focus on their core capabilities – to do conversions.

> 'We do not do extensive marketing of success of the mage yacht building project. The last mega yacht was a big success and we keep this success for potential customers. If they come we share this success with them, but we do not go to talk to potential customers because we want to stay as repair and conversion yard to make a repair of cruise ships' (top manager A).

Several managers of Lloyd Werft concluded that low-cost experiments are the best, if not the only, possibility to penetrate new markets. It was discussed that experiments are needed not only when a company is planning to launch a new product or to penetrate a new market, but also to analyze the actual preferences of clients.

As argued before, often clients do not know themselves what their preferences are or what kind of product or service they would like to get. That is why it is important to make some experiments even with existing services to existing clients.

> 'Maybe they would prefer the very same service but provided a bit differently. If this is the case, a company can ultimately receive a competitive advantage. First of all, by doing these kinds of experiments they demonstrate to their clients that they take care and continuously strive for possibilities to improve their offerings despite the fact that the clients are very satisfied with the existing product/service. This also demonstrates that a company is dynamic and innovative. Having innovative suppliers, clients can also gain competitive advantages. That's why the experiments can trigger a synergy between a supplier and a client. In other words, a 'win-win' situation' (top manager C).

The aforementioned indicates that experimentation played a vital role in the development of Lloyd Werft. Although the ship yard has a conservative policy, experiments are nevertheless part of the their strategy, even if the main purpose of experimentations is once again to be reassured that everything they are doing is right.

This leads to the conclusion that although building a mega yacht or completion of a cruise liner is not a low-cost experimentation, the case-study of Lloyd Werft supports the research proposition that low-cost experimentations trigger development of dynamic capabilities.

7.4. The relevance of size to dynamic capabilities

Proposition 4: ***Different set of dynamic capabilities is needed for SMEs comparing to MNEs.***

The interviewed employees of Lloyd Werft shared the opinion that they work in a very dynamic industry where change is an accepted feature of the business. They do not consider that some periods are more stable and some are dynamic.

> 'People from repair and conversion can go to newbuilding, but not vice verse, or it's much harder to go into the repair business. We, repair and conversion people, do not know when we come to the yard in the morning what we will do the afternoon and this applies for all the people. And this develops our flexibility. It is never boring.' (top manager C)

Both top and middle managers emphasized the importance of developing a capability to react to a changing environment.

> 'The best planning is the success with ad-hoc decisions' (top manager B).

It is remarkable that Lloyd Werft's personnel have a very distinctive understanding of change:

> 'Some people say we work in the industry of constant stress. But what is stress? This is a reaction to requirements to change. But we, at Lloyd Werft, think differently. Indeed, there is always a need to change, but we call it continuous improvement. If you explain to all employees that we require them to improve constantly and that there is no a final destination of improvement, then there is no stress. This is an everyday's business – routine.' (top manager D).

The need to develop dynamic capabilities at Lloyd Werft does not depend on market dynamism, but is constant.

As previously mentioned, the dynamic capabilities at Lloyd Werft are developed by extensive communication with clients.

> 'He (CEO) always participates in the exhibitions. Although he is retired now he still comes to the exhibitions. A lot of key people in the industry know him in person and they come to talk to him. This way he gets the most important news and can easily see what will be the next trend in the market, what the clients' concerns are and whether we have a chance to help them.'
>
> (top manager B).

Lloyd Werft has not created a business development unit nor a spin-off. The creation of the shipyard at Bahamas cannot be considered as a spin-off, because the purpose of the shipyard was geographical diversification and extension of services offered by Lloyd Werft.

The management of Lloyd Werft has a few times emphasized that they were a traditional shipyard, where the role of a business development unit is the responsibility of the CEO.

> 'He is the best person for this. He knows the industry and clients better than anybody else. The clients also know him very well. So, they have open and friendly discussions' (top executive C).

As previously mentioned, during last twenty years, Lloyd Werft has done several experiments such as completion of a cruise ship, construction of a luxury mega yacht, creation of the shipyard at Bahamas. Despite these experiments, Lloyd Werft continued to focus on their strength – complex conversions.

> 'We also built a serious of heavy-lift ships, with our own design, but we focus on our core' (top manager A).

All these experiments were done within Lloyd Werft. The top management did not see a reason why they should have created a spin-off. The management assumed that there might be benefits to have a business development unit in large corporations, but not in SMEs.

> 'We do not need a business development unit. We just keep our flexibility and we keep our enthusiasm for the occupation. Ship repair and conversion is the most exciting occupation' (top manager A).

Thus, the interviewees did not consider that such routines as knowledge codification and distribution, spin-offs, acquisitions of small innovative companies, R&D departments or similar dynamic capabilities can lead to superior performance. In fact, the opinion was expressed that such dynamic capabilities were expensive and on the contrary could only damage the competitive advantages of their companies.

7.4.1. 'Democratic dialogs'

The CEO of Lloyd Werft highlighted that the key factor in their success are employees, their skills, flexibility, enthusiasm and a very close relationship with the client.

> 'All levels of management have good contact with our customers, with the different level of the customers. This gives a very good cooperation. Everybody knows each other and we seldom work with ad-hoc customers. Eighty per cent of our customers are long term customers. We plan that customers can rely on precise delivery times. We always manage on time. '*Termin ist termin.*' Six days to go.' (Top manager A).

The importance of extensive communication with clients has been already mentioned in the previous sections. The top management of Lloyd Werft is really serious about creating all conditions which would enhance communication not only with the clients but internally among the employees. They have moved out from the historical building with the purpose of improving conditions for better communication.

> 'Our new building now is in the middle of the shipyard. Middle managers sit in one room, but senior managers still have separate rooms' (top manager C).

As previously mentioned, Lloyd Werft routinely shares ideas between top and middle management.

> 'We do analyses after each project. We wait 3-4 weeks, and then we discuss pluses and minuses of the project. After each project we have also a meeting with subcontractors to analyze the project: what went wrong, how to do it cheaper etc. We discuss with subcontractors also future possibilities.' (top manager B).

Lloyd Werft's top management admitted that open dialogs with middle managers are important. Although the final decisions regarding what kind of changes should be introduced are made by the top management, the researcher has the impression that despite the fact that middle managers are asked for their opinion, the top management tend to consider that they know best what is good for the company and what is not.

Despite this top down approach, the top management relies a lot on middle management in terms of implementation.

> 'The implementation of all changes is always discussed with middle managers down to foremen' (top manager A).

The interviewed middle managers were unanimous in that they had enough freedom within their responsibilities to implement solutions decided by the top management strategic development plans. They confirmed that the top management always listened to their opinions with great respect and took the best ideas into consideration, which of course motivated them a lot.

7.4.2. Internationalization

Lloyd Werft had a few attempts at internationalization and namely, at the end of 90' Lloyd Werft took a quite spectacular move abroad. In 1998, it founded with local partners a repair facility for passenger ships in Freeport on the Bahamas, where most cruise ships gather, true to the motto 'if the customers have no time to come to us, we'll go to them' (Witthöft, 2007). Lloyd Werft's Grand Bahama facility duly commenced operation in 2001. However, Lloyd Werft had already withdrawn from this commitment at the end of 2003 (Witthöft, 2007). Although the publicly available information just commented on this withdrawal as 'for strategic reason', the researcher came to the conclusion that this was a result of non-strategic thinking of a German-British private equity, who in 1998 acquired a 70% interest in the company and aimed only for the fastest and highest level of ROI.

> 'The Cost to erect the shipyard there was predicted 65 mln USD, but had to increase to 95 mln USD. We like 10% shareholder had to increase our share from 6,5 to 9.5

> mln USD, but our finance investor said no, the risk was too high. I tried hard to convince him, but he said no. We were not allowed to increase and we had to step out, unfortunately. But the shipyard is in very good shape and attracts a lot of cruise ships (top manager A).

Indeed, today, Grand Bahama Shipyard is one of the world's leading facilities for cruise ships repair and refurbishment. Working equally in Germany and in the Bahamas might significantly have increased business potential for Lloyd Werft and its employees. Unfortunately this did not happen.

Another attempt to become a more international company was at the beginning of 2000s when the yard wanted to concentrate on sending its own 'flying squad' around the world to repair vessels on the spot to save them having to come to Bremerhaven if at all possible (441 Witthöft, Hans Jürgen 2007). Unfortunately, Lloyd Werft did not manage to develop this business direction to an essential extent.

Despite the fact that as mentioned in the previous sections, the cluster of local professional subcontractors and local skilled workforce is one of the main advantages of Lloyd Werft, it became also a disadvantage in the terms of internationalization. Although it was not admitted by the top management of the shipyard, discussions with the middle management left a clear feeling that the people were reluctant to travel and to work far away from their homes.

> 'We did several conversions at Grand Bahama Shipyard, but new management does not like it, they rely on owners' subcontractors' (top manager B).

Although Lloyd Werft plays a key role in a world's cruise ship repair market, the company did not achieve an ultimate global leading position. It remains just a local facility, albeit for major conversions.

7.4.3. Collaboration between small and medium-sized firms with large enterprises

At the end of 90s Lloyd Werft was partly (70%) sold to a venture capital company in order to finance a further growth. Unfortunately, the new owner had too short-term plans for the

company and an unrealistic vision of its value. This had its serious repercussions and namely, instead of further development and internationalization, the new owner forced Lloyd Werft to withdraw from their commitments to pursue development of their branch shipyard in Free Port on the Bahamas.

By owning this shipyard, Lloyd Werft would possess a leading role in a global cruise ships conversion market. This is a good negative example of being a part of a large complacent corporation, which does not have skills and deep understanding of a nature and future trends of the business.

The top management valued their independence greatly:

> 'After insolvency in 1996 we were not belonging to any group and this made us very successful, because we were much more flexible in our decisions, and this is very important thing in shipbuilding, ship repair and ship conversions. Because, if have to make a quick decision and not ask several people within organization what to do and what not to do, it is a great advantage' (top manager A).

At the same time, the top management of Lloyd Werft admitted that cooperation with the two largest cruise companies (RCCL and Carnival Corporation) as co-owners of Grand Bahama Shipyard would have given a lot of benefits. RCCL and Carnival Corporation could guarantee a steady workload for Lloyd Werft and due to the competence of Lloyd Werft, Grand Bahama Shipyard would provide not only docking facilities, but would be capable to conduct even the most complex refit and revitalization projects.

Despite the serious differences in opinions with the venture capital fund, Lloyd Werft's management saw a lot of advantages to having a strong partner.

> 'When we bought out a financing investor we were looking for a strategic investor and we looked at Fincantieri. Because with Fincantieri we would have a good partner.
>
> Later on in 2000-2001, Fincantieri was interested in buying our shipyard and we were very interested participating in the deal to buy Bahamas shipyard because we thought then we would have worldwide a network for ship repair cruise ships: Grand Bahama, Palermo and Bremerhaven. Then we could offer our clients worldwide service. But

cooperation with Fincantieri was not successful either; they could not get alone with Americans.

Then we tried to cooperate between Palermo and Bremerhaven. Fincantieri had 20%, but very soon the strategic view of Fincantieri was changed. Fincantieri became not so much interesting in repair and conversion of cruise ships. They were more interested in offshore and military ships, therefore they bought shares in companies in the UK to participate in aircraft carriers and bought 2 shipyards in US to build navy crafts and lately they have bought a shipyard in Brazil to participate in Brazil with navy works. We were not any longer in their interest' (top manager A).

The aforementioned provided evidence that Lloyd Werft saw a lot of advantages in having a strong cooperation partner. Unfortunately, they could not find it in the right time and their idea to become a global contractor to conduct complex refit projects has not been realized.

From one side, Lloyd Werft's management emphasized the importance of flexibility and independence in the decision making process. They highlighted the time when they were independent from any partners. From another side, Lloyd Werft always needed to have a financially strong partner who could assist to finance the shipyards further development, whether it be establishing a dry-docking facility at Bahamas or purchasing a dock for post-Panamax-size ships.

Due to an absence of a reliable large partner, Lloyd Werft could not implement all their plans and have to enjoy a privileged role in remaining just a local shipyard.

To summarise, Lloyd Werft did not develop dynamic capabilities normally associated with large companies and in general the top management were very concerned by the fact that dynamic capabilities might be too expensive and consequently harm the company. Nevertheless, they still developed such dynamic capabilities as extensive communication and saw the potential benefits in the cooperation with large companies.

Although the case study does not provide any direct evidence to support the research proposition that a different set of dynamic capabilities is needed for SMEs compared to MNEs, it can be concluded that the research proposition is partly supported.

7.5. A summary of evidence by propositions

proposition	evidence from the case	conclusion
Proposition 1. The potential gain from dynamic capabilities is significant even in stable environments	In shipbuilding and conversion it is very important to understand what our customers want and react accordingly. Also it is important to know new laws and regulations coming to force and understand which business opportunities they bring together. We have to tell the ship-owners yes, we can help the problem, we can solve it, we can do it this way. In 1996, when the parent company went bust, there was a ship 70% done, but the ship could not been finished, we convinced COSTA that Lloyd Werft could finish it. We also convinced NCL to complete another ship. After it they ordered the second ship from us and built the whole ship from A to Z. The hull was built at another shipyard, but we did engineering and completion. Such projects make work interesting for our employees. Therefore they are excited. And these projects were financially successfully. We had a very high level of apprentices 10% of our employees. They started from bottom and became engineers. They were studying and coming back. They were a lot knowledgeable and skilled people. Now at the shipyard, here are a lot of people what are working 4th of 5th generation.	Supported

Proposition 2. The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels	To foresee the future, first of all we (senior managers, CEO) discuss with our customers. Marketing and sales here at Lloyd Werft is in the hands of the CEO. He has a direct contact with the customers. And he hears the wishes of the customers directly. Then he discusses with the middle management once a week every Monday morning at 8 o'clock. They are sitting together and discussing these things (actual things and future perspectives). Anticipating the future is not the main task of the middle managers. They should rather concentrate on day-to-day work, how they can streamline day-to-day work. This is more beneficial. But if they have ideas, they are very welcome. And indeed, very often, they come with innovative ideas. At least once per week we organize a meeting where top and middle managers participate together. One of the objectives for these meetings is to get ideas from middle managers about possible future changes in preferences of the clients. We do not have any R&D department, but we have innovative people in different positions. They have good ideas, they come to the management asking can we do this, can we do that. This makes the life and working together very interesting in the yard.	Partly supported
Proposition 3. Low-cost experimentations trigger development of dynamic capabilities	Although the mage yacht was a one-off approach, now we are receiving a lot of inquiries to build a mega yacht and we are selecting. Maybe they would prefer the very same service but provided a bit differently. If this is the case, a company can ultimately receive a competitive advantage. First of all, by doing these kinds of experiments they demonstrate to their clients that they take care and continuously strive for possibilities to improve their offerings despite the fact that the clients are very satisfied with the existing product/service. This also demonstrates that a company is dynamic and innovative. Having innovative suppliers, clients can also gain competitive advantages. That's why the experiments can trigger a synergy between a supplier and a client. In other words, a 'win-win' situation.	Supported

Proposition 4. A different set of dynamic capabilities is needed for SMEs compared to MNEs.	The implementation of all changes is always discussed with middle managers down to foremen. Our new building now is in the middle of the shipyard. Middle managers sit in one room, but senior managers still have separate rooms. All levels of management have good contact with our customers, with the different level of the customers. This gives a very good cooperation. Everybody knows each other and we seldom work with ad-hoc customers. We do analyses after each project. We wait 3-4 weeks, and then we discuss pluses and minuses of the project. After each project we have also a meeting with subcontractors to analyze the project: what went wrong, how to do it cheaper. We discuss with subcontractors also future possibilities. We do not need a business development unit. We just keep our flexibility and we keep our enthusiasm for the occupation. Ship repair and conversion is the most exciting occupation. After insolvency in 1996, we were no longer part of a group, and this made us very successful, because we were much more flexible in our decisions, and this is a very important factor in the shipbuilding, ship repair and ship conversions industry, because if have to make a quick decision , you do not need to ask several people within the organization what to do and what not to do	Partly supported

7.6. Conclusions

Having emerged through different internal financial crises, Lloyd Werft was forced to focus on competence-based advantages rather than on facilities-based advantages. Good relations with the clients helped Lloyd Werft to build necessary and rare competences which distinguished the shipyard from the rest; and despite the fact that Lloyd Werft were not able to build a dock which was necessary to meet the growing demand for Post-Panamax ships, the company were nevertheless able to develop competences which guaranteed their enduring success.

Over a period of several years, Lloyd Werft have successfully developed capabilities in the area of revitalization and completion of cruise ships, by training new personnel, developing existing project managers and taking on challenging cruise ships completion projects. These new capabilities, developed during relatively stable times, became crucial some years later when the market started to boom and were instrumental in enabling Lloyd Werft to take a leading position in the cruise ships refit and conversion market.

The former CEO of Lloyd Werft, who held his position for 23 years, was a great source of new ideas. He had a unique skill, namely to foresee future trends and adapt accordingly in good time. He has developed this unique capacity to sense and seize new business opportunities through extensive communication with customers and further discussion of new ideas internally. The CEO, whose main responsibilities lay in the area of sales and marketing, routinely met clients and set up internal meetings on a regular basis. This capacity led to the superior performance of Lloyd Werft over many years and helped the ship yard to survive during the most turbulent times in their over 150-year-old history.

During the last decade, Lloyd Werft undertook a few important experiments, such as the completion of the new building of a cruise ship and construction of a mega yacht. The first experiment led to a new business area for Lloyd Werft, but although the second experiment to build a mega yacht was financially successful for Lloyd Werft, the management decided to focus on their core capabilities and to stay as a repair and conversion yard to make and to concentrate on repairs of cruise ships. This focus on core capabilities led to the

acknowledgment of Lloyd Werft as 'the best in class'. Despite the fact that Lloyd Werft has a conservative policy, experiments form an integral part of the their strategy, even if the main purpose of experimentations is once again to be reassured that everything they are doing is right (i.e. to reinforce company strategy).

Lloyd Werft has just a few processes aimed ostensibly at developing entrepreneurial spirit in the company. One of them was weekly meetings between top management and middle management in order to discuss latest news, innovative ideas, initiatives taken and their results. Despite the fact that the top management acknowledged that one of the main advantages of their shipyard are skilled and flexible employees the top management still believed that the most important initiatives should come from the top managers and the key role of middle management is to implement the new ideas to the letter.

The top management of Lloyd Werft considers that one of the key factors of their success is the very close relationship with the client on every organizational level. There are a few processes which trigger the development of extensive communication, such as enhancing proximity of middle and top managers and periodical analyses of conducted projects internally and with external parties.

Although the top managers were tempted to make decisions regarding needed changes by themselves, the freedom to implement the changes was ceded to middle managers.

Lloyd Werft does not have a business development unit and has not created a spin-off. The role of business development is played by the CEO, who has the well-established business relations with clients and has the best vision of market future trends.

Lloyd Werft had a few attempts at internationalization, specifically by establishing together with USA and Bahamas' partners a shipyard at Grand Bahama, and by creating 'flying squads' with the objective of revitalizing cruise ships at any location in the world. Unfortunately, both attempts were withdrawn due to reluctance of the former major shareholder and complacency of the personnel. In order to accomplish its ambitious plans, Lloyd Werft actively sought cooperation with large companies who could support their initiatives. Unfortunately, the found partners did not fulfil their expectations. On the contrary, they even limited the shipyard's perspectives. Although Lloyd Werft's top management

emphasized the importance of flexibility and independence in the decision making process, they always needed to have a financially strong partner who could assist in financing the shipyards further development, whether by establishing a dry-docking facility at Bahamas or purchasing a dock for post-Panamax-size ships. Due to an absence of such a reliable large partner, Lloyd Werft could not implement all their plans and have to satisfy themselves with being just a local shipyard.

The found dynamic capabilities and processes of their emergence can be summarized in the following table:

Table 9. Dynamic capabilities and processes of their emergence at Lloyd Werft.

Dynamic capability	***Processes of creation or/and development***
Entrepreneurial management (having the capability to sense and seize business trends)	1. Close and good relations with clients 2. Deep knowledge of possible new regulations 3. Extensive communication with customers and further discussion of new ideas internally 4. Weekly meetings to discuss latest news, innovative ideas, any initiatives taken and their results evaluated 5. Participation in exhibitions to gain extensive communication with clients to get an insight into client's expectations, possible future trends 6. Top management emphasizes the importance of continuous improvement, which substitute the need to change.
Low-cost experiments	1. Constant experimentation with new business ideas
Capability of the organization to change according to market changes	1. Taking on a lot of apprentices (10%) 2. Developing of skills which are not available in the market 3. Training and analyses of the projects
'Democratic dialogs'	1. Extensive communication among employees 2. Periodical meetings with all employees and subcontractors to do in-depth analyses of the projects 3. Extensive communication with clients on all organizational levels

Chapter 8. Cross-case Analysis

Uncertainty has become the defining characteristic of business competition today. The Accounting firm PriceWaterhouseCoopers even summarized the last decade 'engine' as "10 years of high-speed change" characterized by "unsettling twists and turns", recounting a series of events that confounded executives' plans (Donald, 2009).

Companies must reinvent themselves if they want to survive (Isenberg, 2010). And indeed, companies have started to look for alternative ways to maintain their competitiveness and one of them is to develop a capacity to spot and exploit changes in the market.

The executives of the companies of the current case-study shared the common opinion that in unstable times, cultivating and using dynamic capabilities can help companies not only survive but emerge as true market leaders.

A recent McKinsey & Company survey found that nine out of ten executives ranked companies' capacity for spotting and exploiting changes as both critical to business success and growing in importance over time (Sull, 2009). The main focus of the interviewed executives is on their companies' ability to consistently identify and capture business opportunities more quickly than their rivals do. How they do it, how they prepare their organizations for rapid and radical changes, is the main focus of the current chapter.

In this chapter, the researcher will make cross-case analyses based on the propositions presented in the conceptual framework and discussions of each individual case-study company as presented in Chapters 5-7.

8.1. Stability and dynamism in the environment

Proposition 1: ***The potential gain from dynamic capabilities is significant even in stable environments.***

Table 10. A comparison of the case study companies data analyses based on a research proposition

Proposition 1	Marioff	Merima	Lloyd Werft
conclusions	supported	supported	supported
main ideas	Stable and dynamic environments should be treated equally. Stable times provide unique possibilities to create market changes	Stable environment offers greater chances to be a pioneer in the market. Preparation for rapid and radical changes should take place during stable times	It is important continuously to follow clients' changing needs and regulations. Change must be a part of the strategy

According to Teece, Pisana and Shuen (1997), dynamic capabilities are the abilities of companies to change their resources according to changing business environment conditions. The whole concept is based on an assumption that external business conditions are changing rapidly and radically (Teece, 2007). Thus, for a long time it was considered that the dynamic capabilities concept is applicable to companies who operate in agile markets or at least who face those rapid and radical changes. Dynamic capabilities and a stable environment may appear to be contradictory concepts, but the case-study companies proved the opposite.

All three case-study companies became successful because they were able to develop their dynamic capabilities within a stable environment.

Although the shipbuilding industry is considered as a relatively stable environment, especially when compared to the pharmaceutical or IT industries, it is interesting that the

case-study companies have themselves not considered the shipbuilding industry as a stable one. Probably, this is one of the main distinctions from the vast majority of other companies which do not change or innovate until they face rapid and radical changes.

Their approach is that even if there are no visible exogenous demands for change a change must be induced in order to become distinguishable from the competition.

Marioff invented and launched their Hi-Fog system during stable times and mature markets. As described in the Chapter 5, a low-pressure fire extinguishing system had been available in the market for decades before Hi-Fog was invented. Even more, there was no obvious demand for a high-pressure system. The founder of Marioff made his assumptions based only on a need of one client to have a low-weight sprinkler system.

Merima also created their 'turn-key' new-buildings' outfitting business model in a stable environment. They were just the first who sensed the potential demand for it and seized the business opportunity.

Lloyd Werft experienced the similar practice by developing their required competences for very complex conversions rather than following the general trend of merely enlarging shipyard docking facilities.

A clear pattern can be found in these three companies. They all ignored the conventional approach to shipbuilding and the fact that shipbuilding was a stable industry and the market was mature. This meant that they invented new products and new business models while it seemed there was no demand for doing so.

Actually a study of Zahra et al. (2006) also supports the idea that a volatile or changing environment is not a necessary component of a dynamic capability. There are some other studies (Arthurs & Busenits, 2005; Zahra & Filototchev, 2004) which support the same idea, but the literature in general ignores the premise that dynamic capabilities may and should be developed in stable environments.

The case-study companies developed their dynamic capabilities regardless of whether the time period was stable or dynamic. The dynamic capabilities - like experimentations, close business relationships with clients, internationalization, were created at the earlier stage of

the companies' development. These dynamic capabilities allowed the case-study companies to have capacities to sense and seize new business opportunities when they were invisible for others.

The case-study companies created a change in the market and new business practices, shifting the whole industry from a stable to dynamic condition. The following graph summarises this process:

stable environment / dynamic environment

Figure 11. The process of shifting the industry from a stable to dynamic condition

The case-study companies achieved their success in stable times and managed to maintain it through less favourable conditions. They created the market change and outperformed the rivals who were not ready to adapt quickly enough to the changing business conditions.

This would tend to support the literature which suggests that 'successful entrepreneurs, rather than predict the future, try to create it' (Schlesinger et al., 2012).

The market changes created by the case-study companies are summarised in the following table:

Table 11. The market changes created by the case-study companies

	Marioff	Merima	Lloyd Werft
market situation before the change	The low-pressure sprinkler system was widely spread in the market. Dozens of companies provided this kind of system to the shipping and shipbuilding industry	Ships were built by shipyards' employees and by a number of small subcontractors. Shipyards provided the design, principal and fabrication drawings, supplied materials and did a big part of outfitting works	ship repair yards were mainly capable of doing only standard docking repair works like steel renewal, treatment of a hull etc.
created change	Marioff invented a high-pressure fire extinguishing system whose weight was 10 times less compared to the conventional sprinkler system and it took up substantially less space. Due to these advantages there was a great demand for the system, which led to the unprecedented success.	Merima proposed that the most sophisticated areas of cruise and passenger ships would be outsourced to 'turn-key' companies who would provide the whole range of services, and namely, design, drawings, all necessary materials supply, and technical and interior outfitting	Lloyd Werft started to render to their clients very complex services like ships lengthening, completion of newbuilding, revitalization etc.
market situation after the change	During a decade after Hi-Fog system was widely presented to the industry, it became an indicator of the high quality standard for any cruise and passenger ship. During 2004-2010 no single cruise ship built not equipped with the Hi-Fog system would be built. Several rivals tried to copy the system, but without significant results.	Since early 2000s all cruise ships newbuilding projects in Finland were split by the shipyards between a limited number of 'turn-key' contractors who provided entire outfitting of big areas including providing the drawings and materials. These project management companies were already selecting by themselves installation companies and material suppliers. As the consequence, the decision power and competence shifted from the shipyards to the project management companies who enjoyed a privileged position	Although several shipyards have tried and continue their attempts to conduct projects of the same level of complexity, just a very few have succeeded. This means that the number of real competitors is quite limited.

The above table demonstrates that the case-study companies did not just listen to what their clients wanted, they had a capacity to understand their problem or even their potential problem. Similarly to Isaacson (2012) who asserted that 'customers don't know what they want until we've shown them' the case-study companies invented their products and business models without being informed by their clients that they particularly wanted this product or any such business proposition.

By developing their dynamic capabilities, and specifically a capacity to sense and seize new business opportunities in stable environments, the case-study companies created substantial market change and at least temporarily were ahead of the competition, creating wealth and enduring success.

In contrast to building innovation, building dynamic capabilities assumes that companies can repeatedly demonstrate capacities to reconfigure their resource-base when they face rapid and radical changes (Rothaermel & Hess, 2007). The following table summarises some of the major changes the case-study companies had to implement in order to weather the rapid and radical changes in the industry:

Table 12. The major changes the case-study companies had to implement in order to weather the rapid and radical changes in the industry

Marioff	Merima	Lloyd Werft
2006 - the final year to equip all passenger ships with a sprinkler system. Consequence - a slump in demand for the system. Action - Hi-Fog2000 was launched to cover 25m2 instead of 16m2 of previous version. Result - the preferable choice for cruise ships. DC - experimentations, entrepreneurial top management	2008 - the final year of cruise ships newbuilding boom. Consequence - many Finnish shipbuilding subcontractors and suppliers faced uncertainty. Action - to continue developing the refurbishment business unit. Result - retaining a strong position in the cruise ships refurbishment market. DC - internationalization, entrepreneurial top management, experimentations - constant practice of change	2000s - the continuous growth of post Panamax-size ships. Consequence - substantially larger docking facilities are necessary for post Panamax ships. Action - due to a lack of finances an alternative solution was found: to focus on very complex and sophisticated conversions. Result - a reputation of the best in class. DC - experimentations, entrepreneurial top management, entrepreneurial middle management, exploration learning
2008 - the final year of cruise ships newbuilding boom. Consequence - a slump in demand for the system. Action - substantial development of after-sales market. Result - after-sales became the fastest-growing division DC - internationalization, entrepreneurial middle management	2010 - no new shipbuilding orders in Finland. Consequence - many Finnish shipbuilding subcontractors and suppliers went bankrupt. Action - refocusing on German market. Result - retaining solid financial results. DC - internationalization	

All three case-study companies share similarities in the basic principle that dynamic capabilities as a capacity of the organisation to change should be learned before the actual change arrives.

The case-study companies demonstrated that dynamic capabilities developed during stable times, can substantially improve companies' chances to succeed while facing conditions of

environmental volatility. For instance, Marioff has not only created market change (although according to Eisenhardt and Martin (2000) this is already a dynamic capability), but also repeatedly adapted to the exogenous changes by reconfiguring its resource-base.

Once again the whole business philosophy of Marioff can be summarised in the citation of their founder who asserted:

> 'Every five years you need to have new product, otherwise the competition will catch you up. It is like the mobile phone. You do not sell five-year-old phone today' (G. Sundholm).

Similarly, Merima not just created a new business model, which became a new standard for the industry, but constantly reconfigured its 'internal and external competences to address rapidly changing environment' (Teece et al., 1997).

Merima is particularly distinguished from other two case-study companies by its firmly held strategy of constant change. For Merima, change is not an episodic phenomenon, but the way the company competes. Although the top management have not acknowledged that this is a main part of their strategy, the current case study found that during the whole history of its existence, Merima have constantly implemented changes to outperform their rival. Firstly, they created a new business model, which became a new practice. Secondly, they developed a sophisticated logistics system. Thirdly, they started to produce tailor-made marine interiors, which were not available before. Finally, despite the great financial success in the passenger and cruise ships new-building market in Finland, Merima started to develop the global refurbishment business and promote their services in Germany at the early stage. Merima's capability to change can be considered as the core dynamic capability which guaranteed them success.

Although Marioff has also succeeded in developing their dynamic capabilities in stable times and remained successful during turbulences in the market, it seems that after the company was sold, change was no longer viewed as a way to compete. The company relied on their superior product and flawless execution of the projects. It was different when the company was managed by its founder, who similar to Merima, implemented changes as a way to compete.

This means that after Marioff was sold, the company faced the syndrome of 'path dependence' (Augier & Teece, 2009; Teece, 2007) where companies operating in stable environments which do not practice development of their dynamic capabilities, might be less used to uncertainty and changes and thus more path-dependent. The more successful companies become, the more difficult it is for them to recognize when they must change. Over time, successful enterprises create distinct perspectives. These doctrines contain specific ideas about how to compete, performance measures, organizational structures, and whom to reward. The beliefs and practices constitute a company's dominant logic. The logic may not be articulated, but every employee knows: that's the way we do things here. But these success factors often turn into orthodoxies, and no one challenges them (Prahalad, 2010).

Here arises the second feature of the current study - specialty of small and medium-size enterprises. When Marioff was sold and became a part of the large corporate, their size was already close to that of a large company, rather than a SME. This means that the approach to dynamic capabilities is different in SMEs and large companies.

Although Merima has experienced substantial growth during their history, they still have not achieved the size of a large company and led by their founder, they have lost none of their agility.

The case of Lloyd Werft has not provided enough evidence to assert that change was a part of their strategy. Due to difficulties in financing their business development initiatives, Lloyd Werft has probably lost out on a few great business opportunities (for example partnership in Grand Bahama Shipyard and acquisition of a post-Panamax-size dock). For this reason, why Lloyd Werft is not as good an example as Merima and Marioff in terms of demonstration of superior performance due to dynamic capabilities learned during stable times. Nevertheless, Lloyd Werft has developed a few dynamic capabilities which have allowed them to become the preferred choice for the most complex and sophisticated conversions.

Despite the fact that continuous change is not recognised as a critical factor for success in stable industries, at least not to the same extent as in high-velocity industries (Brown and Eisenhardt, 1997 (the art of change)), the case-study companies demonstrated that change as a strategy to compete can be relevant in the shipbuilding industry as well and by

implementing change as the major part of the strategy, the case-study companies retain profound strengths that are very difficult to replicate.

All three case-study companies supported the research proposition that the potential gain from dynamic capabilities is significant, even in stable environments.

Although, as mentioned before, the main focus of the current study is the processes of emergence of dynamic capabilities, which will be discussed in the following sections, it is important to highlight that these processes were developed in a stable environment and by small and medium-sized enterprises, and might differ when compared to large companies, particularly operating in high-velocity industries.

8.2. Entrepreneurial processes

Proposition 2: ***The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels.***

Table 13. A comparison of the case study companies data analyses based on a research proposition

Proposition 2	Marioff	Merima	Lloyd Werft
conclusions	supported	supported	partly supported
main ideas	entrepreneurial top management plays the most crucial role in development of dynamic capabilities. Although the very entrepreneurial founder was a key to success, the company continued its development only due to entrepreneurial middle management, when the founder sold the company.	A capacity to sense and seize new business opportunities depends only on the entrepreneurial skills of top managers. A company should consist only of very entrepreneurial people who are hungry for new achievements.	The top management plays the important role in sensing and seizing new business opportunities, but is not dependable on one person. It is important to have entrepreneurial people in different positions.

The senior managers of the case-study companies have several similarities. First of all, they are charismatic individuals with clear visions and exceptional entrepreneurial skills. In the case of Marioff and Merima, the chief executives were also founders of their companies, major shareholders and kept their leading position for decades.

The senior managers of Marioff and Merima were also the inventors of new innovative products and business models.

They were the main generators of new ideas and preferred to retain for themselves the privilege to foresee the future market trends and new business opportunities. The very same idea was supported by Dyer (2009), who claimed that senior executives of the most successful companies do not delegate creative work. They do it themselves and they have to develop such skills as associating, questioning, observing, experimenting, and networking

(Dyer, 2009). Augier and Teece (2009) also believe that good leaders will have a 'nose' for opportunities and seize them.

In the case of Lloyd Werft, although the senior manager was neither a founder of the company nor an inventor of innovative products or business models, he was nonetheless definitely a main visionary and a generator of many new ideas.

In contrast with the recent literature which says that 'the focus is shifted from top-down distribution of information to a bottom-up exchange of ideas' (Groysberg & Slind, 2012), the founders of Marioff and Merima had an absolutely different management style. They had rather a command style than a democratic style of management. But this would tend to support some other studies as well which propose that a leader should have individualized consideration for employees and to have a leader-mentor approach. Such a leader would also focus on building an organizational culture that is flexible, conducive to innovation and learning and therefore would be adaptable and responsive in changing markets (Simon, 2010).

Of course, managers need first and foremost to ensure that their resources are optimised, but in the contemporary business environment they have to focus on ensuring that the company's resources remain 'valuable, rare, difficult to imitate, and non-substitutable', and this is the role of senior executives.

Although there were no significant deviations among top executives of the case-study companies in the opinion that it was the role of only the highest executives to define what kind of changes and when to implement in their organisations, the executives differed in opinion about whether middle management should be involved in the process of identification of future business development or not.

According to Dixon et al. (2010), leadership theories suggest that top managers are an important resource. Their knowledge determines the organization's ability to leverage and exploit other resources and to adapt to changes in the environment (Barney, 1986; Mahoney, 1995; Penrose, 1959). This is especially true for SMEs, where companies face changes more often than in MNEs and there are no 'departments' to deal with the issues, but the degree of success depends on a limited number of senior managers. The case-study senior managers

were not only innovators and visionaries, but they were also implementors of their strategy and ideas. They preferred to keep control over the all main decisions in their companies, what might be one of the features of SMEs. For instance, the founder of Marioff confessed that he had always sold his companies when they had grown too large to manage them without a complex organisational structure.

As this research has a focus on SMEs, a pattern that in successful SMEs a senior manager plays a vital role and concentrates all the power in his hands despite the possible disadvantages of it can clearly be discerned. Actually, the senior executives of the case-study companies did not acknowledge any threat in the key role they play in their companies. On the contrary, they are deeply convinced that tight control, concentration of decision making is a key factor for success and innovation.

Although the senior managers of the case-study companies highlighted the ultimate role of a senior manager in sensing and seizing new opportunities, their approach might be quite dangerous. For instance, after Marioff was sold to a large multinational corporate, their business started to suffer. One of the reasons was that Marioff's middle management was not ready for the radical organizational change and in particular they became responsible for new business areas development, finding new markets and their conquests, which was always a responsibility of their CEO. They were also not ready for the amount of reports they needed to produce daily. It can be concluded that although a senior manager plays a vital role in development of capacities to sense and seize new opportunities in SMEs, other dynamic capabilities, such as an entrepreneurial middle management might be equally important when SMEs grow.

The risk of egocentrism even of the smartest, most innovative and very capable senior managers should be acknowledged. Similar conclusions were also found in other studies of companies which operated in stable industries, where the same threats of power of one strong leader were also acknowledged. For instance, according to a study of Dixon et al. (2010) one of the key features of the Yukos (in the beginning of 2000s, at that time the most successful Russian company, operating in oil industry) organizational transformation was the role played by CEO, Mikhail Khodorkovsky. He was the driving force for change, innovation and the adoption of Western techniques. However, key decisions were under the supervision of one

man (Dixon et al., 2010). The researchers found that Khodorkovsky was the driving force behind Yukos. He was the principal change agent in the organization, and it was his vision, entrepreneurial approach, management and drive that helped Yukos to become the most successful Russian oil company (Dixon, 2010). However, Dixon et al. found that, by concentrating power in his own hands, and those of a few trusted aides, CEO of Yukos had limited the flexibility of the organization to react to crisis. Khodorkovsky's tight control of the company meant that the organization as a whole lacked flexibility and the ability to react to changes in the environment. It wasted intellectual capital, as there were no incentives to build teams and share knowledge, because only one man's approval was required. Khodorkovsky had recognized this problem and was beginning to address it. The jailing of Khodorkovsky came too early for the full implementation of delegated decision-making, leaving Yukos in crisis (Dixon, 2010).

Similar to the aforementioned example, it was found that although entrepreneurial skills of senior managers play a key role and are probably the main dynamic capability, the company can rely on them only on its initial stages. The more a company grows, the more other dynamic capabilities should be developed and a shift of the key entrepreneurship should be done from senior managers to middle managers.

These findings also underline that different dynamic capabilities have different importance in SMEs and MNEs. The case-study companies' senior managers shared the opinion that there was no one single factor for success, but it was very important that senior executives should always be flexible and keep close business relationships with the current and potential clients.

The findings of the case-study companies demonstrate that in order to conduct experiments successfully and extract maximum possible benefits from them, companies should have an entrepreneurial middle management. Although the top management at case-study companies played a vital role in the development of capabilities to sense new opportunities; the role of middle management in seizing new opportunities was essential.

The middle management at the case-study companies were responsible for the implementation of objectives defined by their top management. It is remarkable how much authority and freedom the middle management was given to implement the company strategy.

Indeed, in the contemporary markets it is not enough just to have a smooth implementation process, where middle management strictly follows top management instructions. Although business literature still continues to emphasize the importance of top-down management in the implementation of organizational changes and such management gurus like Jack Welch (2007) have a significant impact on business elite, analysis of the cases demonstrated the importance of independent thinking in middle management.

As middle management is responsible for conducting experiments and the level of innovation to a great extent depends on the level of the entrepreneurial thinking of middle management. Product or service innovation in most cases is created by middle management. It seems business management and academic literature underestimates the crucial importance of entrepreneurial thinking on every organizational level. It is simply not enough to have only entrepreneurial senior managers. Many successful companies have an entrepreneurial top management, which is led by a charismatic CEO. This is something that is easily observable and obvious. Forbes or Fortune magazines very rarely if ever publish a photo of a middle manager of small or medium-sized company on their cover pages. But an entrepreneurial middle management is what actually makes the difference between merely successful companies and sustainably successful companies.

However, one should acknowledge that entrepreneurial middle management can hardly contribute anything to the development of their companies if there is no entrepreneurial top management to appreciate the innovative efforts of middle management.

The middle managers of the case-study companies emphasised the crucial importance the senior managers play in discovering new market opportunities, admitting that it is ultimately the role of senior managers to define which strategy would work for the company and which not.

Although the top management of the case-study companies did not admit the importance of innovative ideas of their middle level colleagues, the case-study firms have obviously built their success not only on entrepreneurial senior managers, but to a great extent on the innovation of their middle managers. It should be mentioned that by 'innovative middle managers' it is meant a middle management team which can create for their company a

unique and valuable position through a distinctive set of activities, those innovative middle managers who have "a capacity to hold two diametrically opposing ideas in their heads" (Dyer, 2009).

Of course, the top management of the case-study companies played a vital role in the development of an entrepreneurial middle management, by creating an environment of psychological safety, convincing people that they would not be humiliated, much less punished if they made mistakes' (Amabile, 2008).

The strength of entrepreneurial top management is to create new markets, while middle management should find ways to bring new strategies into innovative strategy-implementation processes. Ensuring that a company has a balanced team, which is focused on both the present and the future, is a critical stage in the development of dynamic capabilities.

The literature advises that managers also need to recruit and retain the right staff, competent in required skills, experienced, knowledgeable and technologically 'savvy'. If they need to develop these capabilities in their existing employees, short courses, training programs and part-time tertiary study can all be accessed for these purposes. In particular, managers need to establish 'organizational contexts in which learning takes place and organizational dynamics for creating new knowledge' (Simon, 2010).

Supporting the above mentioned literature advice, Marioff and Merima share the similarity in the approach to the entrepreneurial middle management. The process of development of entrepreneurial middle management consists more of recruiting and selecting the personnel with the right characteristics rather than training up less entrepreneurial employees.

All three case-study companies retain their core personnel for many years. Lloyd Werft and Merima senior executives were particularly proud of the fact that several of their key employees have been working for their companies all their lives. It is common for Lloyd Werft that whole families work at the shipyard. This demonstrates not only a great loyalty to the company, but it also reflects their contribution to the development of the company.

Despite the fact the major shareholder of Merima did not acknowledge the great value of keeping the very same employees, several core employees have been working for Merima

since its foundation. Actually Merima senior managers expressed the idea that the structure of employees should be reconfigured in accordance with changing market requirements regardless of how many years an employee has served in the company.

In contrast to Lloyd Werft, Marioff and Merima rely more on the recruitment process rather than on development of entrepreneurial people. It was concluded that at Marioff and Merima, the process of recruitment and selection of the most entrepreneurial people was the main process of development of the entrepreneurial middle management.

Another process of the development of the entrepreneurial middle management at the case-study companies was active communication between top and middle managers. As the top, managers should keep an eye on the big picture, they also have to communicate actively with the middle managers who are closer to the front line and so are well positioned to spot opportunities (Favaro et al., 2012).

All three case-study companies have processes of formal and informal communication between top and middle management, such as periodical meetings where top management share their ideas about future market trends and how their companies are planning to address them. Although in all three case-study companies, the initiatives for innovations come from the top, what still remains common is the notion of top management that in order to be successful in a contemporary market situation, a company should have not only an entrepreneurial top management but also middle management with innovative thinking who could independently implement the business ideas of senior managers.

Despite the fact that the senior managers of the case-study companies especially highlighted the crucial importance of the entrepreneurial top management in development of dynamic capabilities, the case-studies of Marioff and Lloyd Werft demonstrate the great importance which the entrepreneurial middle management plays when a company grows from a small or middle-size to a large firm; or becomes a part of a corporate.

The findings regarding entrepreneurial management at all levels underpin the theory which says that entrepreneurial management on every level is a mandatory element for dynamic capabilities (Minniti & Bygrave, 2001) and consequently support the research proposition

that in order to develop dynamic capabilities firms should develop entrepreneurial behaviour at all level.

8.3. Readiness to experiment

Proposition 3: Low-cost experimentations trigger development of dynamic capabilities.

Table 14. A comparison of the case study companies data analyses based on a research proposition

Proposition 3	Marioff	Merima	Lloyd Werft
conclusions	supported	supported	supported
main ideas	A great number of tests proving that Hi-Fog systems performs flawlessly was one the main reasons for Marioff's success	A small company cannot afford to have an R&D department, but should always afford to try new ideas	Although the company should stick to their core, experiments help to keep agility in the organization

The literature ((Hitt et al., 1991; Miner et al., 2001; Zahra, 2006) suggests that experimental learning should be among the priorities for SMEs attempting to compete in today's dynamic but turbulent markets.

Experimentation played a vital role in the building success at Marioff, Merima and Lloyd Werft. All three case-study companies supported the research proposition that low-cost experimentations at small and medium-sized firms may substitute extensive R&D activities at large enterprises and trigger development of dynamic capabilities.

Marioff managed to convince their clients that their new system, which was very innovative at the time when it was invented, was much better than the conventional sprinkler system only due to a huge number of tests in all possible conditions. They were not scared to involve their potential clients in these experiments. Actually it was one way how they developed their dynamic capability. Experiments were essential, but the most important was a prompt feedback of their potential clients and developing close relationships with them.

Similarly, Merima involved their clients in experiments with their new innovation business ideas (initial business idea to offer 'turn-key' interior outfitting services, later developed to

'from steel to steel' model, where one company is responsible for complete technical and interior outfitting of certain areas, including providing detailed design and procurement of all materials).

At Lloyd Werft, close relations with a limited number of selected clients enabled the shipyard to experiment with different type of complex conversions building unique knowledge and skills.

According to the literature, every day, managers in organizations take steps to implement new ideas without having any real evidence to back them up. They fiddle with offerings, try out distribution approaches, and alter how work gets done, usually acting on little more than gut feel or seeming common sense – "I'll bet this" or "I think that". Even more disturbing, some wrap their decisions in the language of science, creating an illusion of evidence. Their so-called experiments aren't worthy of the name, because they lack investigation rigour. It's likely that the resulting guesses will be wrong and, worst of all, that very little will have been learned in the process (Davenport, 2009).

Senior managers from Lloyd Werft and Marioff particularly emphasized the importance of a 'learning-by-doing' approach.

> 'It is a great risk to launch a new product or offer a new service. It is getting particularly risky to provide a new offering to an unknown market or to new clients (Lloyd Werft, senior manager B).

The real payoff will happen when the organizations as a whole shifts to a test-and-learn mind-set. Of course, testing may not be appropriate for every business initiative, but it works for most tactical endeavours, and it just isn't that difficult anymore. It needs to come out of the laboratory and into the boardroom. The key challenges are no longer technological or analytical; they have more to do with simply making managers familiar with the concepts and the process. Testing, and learning from testing, should become central to any organization's decision making. The principal of the scientific method work as well in business as in any other sector of life. It's time to replace "I'll bet" with "I know" (Davenport, 2009).

Although, as aforementioned, the case-study companies successfully utilised experiments and involvement of client in the experiments as one of the key routines to build dynamic capabilities, particularly at the initial stages of the companies' development, in the course of time, some of them faced impediments.

According to Gino & Pisano (2011) one of the biggest impediments to change is overconfidence bias. Success increases our self-confidence. Faith in ourselves is a good thing, of course, but too much of it can make us believe we don't need to change anything (Gino, 2011). Success can make us believe that we are better decision makers than we actually are. Overconfidence inspired by past successes can infect whole organizations, causing them to dismiss new innovations, dips in customer satisfaction, and increases in quality problems, and to and overly risky moves (Gino, 2011).

This is exactly what happened with Marioff. By 2010, the whole organization was already infected by a continuous 'clinking of the champagne glasses'. They seemed to be guilty of taking 'their eye off the ball'. They did not notice that although they supplied their system to every cruise ship newbuilding project, the clients, particularly ship yards, were not always very satisfied with all the aspects of Marioff's project management.

Interviews with some of Marioff's clients (the sources required confidentiality) shed light on the fact that in 2011 Marioff started to lose its monopolistic market position. Over the preceding several years, Marioff had become overconfident in their system. Indeed, even today it is a fact that Hi-Fog has the best track-record in terms of optimum performance. The company possesses all possible certificates for various applications. As stated, Marioff became overconfident in their opinion that Hi-Fog is a must for every cruise ship, as any other system would just diminish the value of a vessel. Despite the fact that it is actually true and despite the superior performance of the system, ship yards became less and less satisfied with the general project management of Marioff and their inflexible pricing policy during the latest world economical crunch. All these forced clients to look actively for alternative suppliers.

In contrast, Merima Oy had a different approach. They pursued their 'continuous improvement' plan by doing a number of different experiments even during a booming

economy. At the peak of the cruise shipbuilding boom, they invested in a new enterprise resource planning system (a vital system for management of complex projects), developed their activities in Germany, established a branch office in China and actively promoted their services in Korea.

Merima middle manager (C) summarized their experimentation policy by referring to a famous film of Jan Kounen 'Chanel Coco & Igor Stravinsky'. He said that

> 'it does not matter in what line of business you are, whether it be exclusive clothes, classic music or cruise ships outfitting. It is important to try persistently something new, very innovative, and if you really believe in your new ideas, learn to convince your clients of the added-value of your ideas. But it is vital not to forget that innovative ideas alone won't guarantee you success. You have to try out your ideas continuously, choose the best ones and be perfect in their implementation. 'Innovative ideas and flawless execution separate winners from losers' (Merima, middle manager C).

Experimentation is one way to test assumptions and theories about what is needed to achieve high levels of performance. And it should continue even after a success. Organizational experiments can also be conducted to push boundaries. Of course, the cost and impact of such experiments need to be managed carefully to avoid severe financial consequences or harming customers. The right questions for leaders of learning organizations to ask is not "what are we doing well?" but rather "What experiments are we running?" (Gino, 2011).

Thus, the role of top management is to maintain habits and a culture of experiments and to do it continuously, despite a level of success; 'to create a culture that shares, forgives, and sometimes even celebrates failure; to create a climate that encourages intelligent risk taking and doesn't punish any failures that result' (McGrath, 2011).

The current case-study offers also an interesting interpretation how those companies on the top got there. Successful companies which deliberately practise their experimentation skills tended to achieve better results than those which rely on ad hoc problem solving techniques.

This goes along with the literature which suggests that most successful ventures had redirected their strategy at least five times before they hit a solid growth trajectory. If you go full speed in your first direction, you'll compromise your ability to figure out which part is wrong – and pay a high price when you eventually do figure it out. But if you invest in stages, spending small sums on the assumption that your strategy will need adjustment, you'll find it much easier to adapt quickly and reach a winning outcome (Gilbert, 2010).

The current case-study supports the idea that companies will get more value from simple business experiments. That's because it's easier to draw the right conclusions using data generated through experiments than by studying historical transactions. Managers need to embrace "test and learn" approach: take one action with one group of customers, take a different action (or often no action at all) with a control group, and then compare the results. The outcomes are simple to analyse, the data are easy to interpret, and causality is usually clear. The test-and-learn approach is also remarkably powerful. Feedback from even a handful of experiments can yield immediate and dramatic improvements in profits (Anderson, 2011).

Without experimentation, managers generally base decisions on gut instinct. What is surprising is not just how bad those decisions typically are, but how good managers feel about them. In practice, there is usually a lot of room for improvement.

Organizations that cultivate a culture of experimentation are often led by senior managers who have a clear understanding of the opportunities and include experimentation as a strategic goal of the firm. Intuition will continue to serve an important role in innovation. However, it must be validated through experimentation before ideas see widespread implementation. This will encourage the out-of-the-box innovations that lead to real transformation (Simester et al., 2011).

At the same time, whatever innovative product and service is offered, competitors will do their best to copy it immediately when the product/service has been well-received and its value appreciated. According to Harri Sjöholm (2010) from Swot Consulting, a common approach is 'Do not change anything when the company is successful – do not change a successful business – do not interfere with a successful trend' and 'we are a global leader in

this technology and we are strengthening our position in the market'. In other words, 'if it ain't broke, why fix it?' This is when stagnation is already liable to set in. Furthermore, new products or product features now need a new business model to succeed, which means that examining them and creating innovations simultaneously into the business model itself is imperative", he continues "in the future, developing a company's business will demand making and introducing at least two simultaneous renewals to the market. We will be shifting from a one-innovation-model to a multiple renewal model i.e. innovation combinations in competition".

The importance of experiments was also highlighted in a number of studies. For instance Becht (2010) wrote: "... we allow to experiment with their ideas – even if everyone else thinks they are wrong. At the end of the day, what counts is not what the 10 people in the room think, it is what the customers think..."(Becht, 2010).

The researcher has also come to the conclusion that experiments are needed not only to invent a new product or to improve an existing one, but to better learn what the clients think. It was argued that the reality of the contemporary global market situation is that whatever innovative product is invented, it will be copied and can be produced ten times cheaper by Asian countries. European companies have based their success on high technology and good technical solutions over the past 20 years, but when Asia became a global production location in the 2000s, and subsequently increasingly a technology development location, it is hard to believe that European operators could base their future competitiveness solely on technical leadership (Sjöholm, 2010/s15;). That's why European shipbuilding companies should develop different kinds of competitive advantages. It was emphasized that technological innovation (like the high pressure fire-extinguishing system Hi-Fog) had crucial importance, but what was even more important was the understanding of clients' needs. This can be achieved only through confident relations with the clientele. To be the first who grasps the client's need (a dynamic capability to sense new business opportunities) is becoming the most valuable competitive advantage. Then, it is important to innovate quickly enough (a dynamic capability to seize new business opportunities), before the competitors do it. When a new product is launched and information about it is available to public, then it is necessary to continue looking for innovative features, service level improvement that will consequently

lead to deepening of relations with the clients. This is an imperative process and cannot be stopped.

It should be also emphasized that a company needs a portfolio of new opportunities, investing in several options: some will pay off, and some won't. Some of them might be mutually exclusive (Cliffe, 2011).

Although the conceptual framework prepared according to the literature review did not put experiments as a major component for the development of dynamic capabilities, the case-study companies provided enough evidence to conclude that if companies do not exercise experiments continuously, even during very successful, fast growing stages of development, they lose the capability to quickly realize business potential or discern its limitations. In such cases, a company cannot learn quickly enough to experiment when it is necessary, if it did not practice it before. It is important to start experimenting with new products or services during stable periods, when any financial loss incurred through unsuccessful experiments can be easily covered by successful businesses.

Thus, it was concluded that low-budget experiments are one of the most important elements in the development of dynamic capabilities of a company.

As the main focus of the current study is on processes and how dynamic capabilities emerge in organizations, the question still remains as to how to develop organizations, where low-cost experiments would be daily routines. This will be discussed in the following sections.

8.4. The relevance of size to dynamic capabilities

Proposition 4: Different set of dynamic capabilities is needed for SMEs comparing to MNEs.

Table 15. A comparison of the case study companies data analyses based on a research proposition

Proposition 4	Marioff	Merima	Lloyd Werft
conclusions	Partly-supported	Not supported	Partly supported
main ideas	A company should be able to learn faster than rivals and to be able to change not only the product, but also the whole business idea. A company should be very agile and if necessary decisions could be made immediately. It is crucial to keep the core team onboard. Geographical diversification is very important. Global presence puts the company on the same level as large companies. Large companies destroy smaller companies when they acquire them.	It is crucial to know the latest changes in marine legislation and to have deep knowledge of competitors. Informal communication is very important. A company should be flexible and ready to be there where are clients'needs demand it. A close cooperation with a large company can give may advantages.	Close contact with clients is always very important. It is important that all levels of the management have good contact with the customers. Project analyses are crucial. A shipyard is fixed to a certain location due to the fact that it is almost impossible to move its facilities. Flexibility in decision making is crucial for success.

'When you stop learning, you stop developing and you stop growing. Then you stop becoming adaptive and you stop becoming agile' (Dillon, 2011).

Knowledge creation is considered a dynamic capability in itself, since it enables firms to achieve a sustainable competitive advantage. An organization that has the ability to create knowledge on an ongoing basis has the advantage of having developed a unique capability of being dynamic (Mitchell, 2010). The competence to generate and apply new organizational knowledge is considered as one of the main sources of the competitive advantage of the firm.

The organization that wishes to cope dynamically with the changing environment must be able to create knowledge better and faster than its competitors (Gore, 1999).

Although the literature (Teece, 1997) does not recognize the importance of developing the adaptive approach in stable industries (Reeves, 2011), the case-study companies demonstrated that dynamic capabilities like the capacity to develop exploration learning should be developed during stable times. Then, they can be efficiently exploited during periods of increasing change.

Actually, it was found that the case-study companies did not consider some times as more dynamic and some times as less dynamic. For instance, at Lloyd Werft, 'change' is considered as constant improvement, which is an ordinary process in the company.

At Marioff and Merima the process of development of organization learning means first of all extensive communication with clients in order to get an insight into their needs. It was emphasized that managers should have ability to recognize new perspectives faster than their competitors. They should have a capacity to read signals in the market and start reacting immediately.

Similar to the literature which suggests that organization learning is a prerequisite for success (Sadri & Lees, 2001), and in line with the research on strategic capabilities done by Rundle (1997) which showed that flexible, adaptable and responsive leaders, managers and cultures are the most appropriate for quickly reconfiguring processes and resources in times of environmental turbulence (Simon, 2010), the case-study companies recognized the great importance of organization learning.

Some differences when comparing the literature were also found. The first main difference is that the case-study companies deliberately practised changes constantly regardless of the level of environmental turbulence. They did it in stable times, learning to recognize market trends, hidden (particularly those, which clients probably do not recognize by themselves) needs of their clients, and to share the information within their organizations and to make experiments.

Another main difference when comparing the literature is that the case-study companies did not recognize any advantage of knowledge codifications. Although there are a lot of written procedures at Marioff, formal documents at Lloyd Werft and a company book at Merima, the case-study companies consider blue-prints as unnecessary.

Once again referring to Marioff's top manager (B) whose assertion summarizes a shared opinion prevailing in the case-study companies. Namely;

> '... what is important is that everyone would learn new things in their field, would it be new SOLAS standards, product features of the rivals or clients' changing needs. I do not think we need any blue-prints. Nobody has time to read them, let alone to write. Communication is important. This is the best blue-print. You never can document people's tacit knowledge, but you can learn it by communicating with them. I do not want to say that we do not learn. We do learn enormously, but there is no formal process in place. Those who do not learn new things are replaced by those who do. The changes are happening too fast, we do not have resources to write instructions for every possible occasion. It is necessary to understand very quickly what is happening and how we should act. At the same time, if you continuously do not try to learn new things and to notice what is changing, you will be the last one who will realize that the market has changed...' (Marioff top manager B).

Thus, it was concluded that extensive communication with clients, periodical meetings within the organizations and frequent informal communication were the main processes of organization learning in the case-study companies.

All these findings underpin the theory and support the literature which suggests that organizations which are able to handle change, or whose leaders and managers have successfully instilled an acceptance of continual changing practices, are likely to obtain higher returns from learning as the organization is more responsive and effective in shifting behaviour to exploit 'novel understandings' (Zollo & Winter, 2002). Teece et al (1997) also contend that organizations must be flexible and foster innovation because 'winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and

flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competencies'.

The literature also suggests that if there is 'no attempt to learn and adapt to change in the global environment' then managers in organizations will find themselves reactive rather than innovative (Plessis, 2006).

The principle difference when comparing the literature is that the findings of the current study stress the importance of organizational learning to adapt as much in stable times as in a turbulent environment. That is why it was concluded that the study only partly supports the research proposition that in increasingly changing environments, firms are likely to increase their dynamic capability by developing exploration learning, because despite the fact that case-study companies recognized the importance of organization learning, they developed it regardless of the velocity of environmental change, considering change as continuous improvement.

Despite the fact that the literature (Molemaker, 2009; Zahra, 1999; Zahra, 1999; McGrath, 1995) advocates that business development units and spin-offs maintain a high level of entrepreneurship in companies and keep them agile, preventing them from becoming flabby giants, the case-study companies have not provided any evidence for the research proposition that new business development units and spin-offs trigger development of dynamic capabilities in stable environment.

None of the case-study companies have had a spin-off. The founder of Marioff is of the opinion that when a company is reaching a size of a large company, it becomes less flexible and a level of entrepreneurship decreases. This was the moment when he sold his companies and started new businesses. He believes that this is a more efficient way to develop new business ideas. By doing this he could be reassured that a new business initiative would not inherit old traditions from a fully-fledged large company. Although the founder of Marioff tended to sell his well-established companies and to continue with his new business ideas as a start-up, Marioff has never had a spin-off.

Similar to Marioff, Merima has not had a spin-off either. Probably the size of Merima is still not large enough to justify doing spin-offs and the top management prefer to implement their

new business ideas within their current company whilst having the benefits of well-known brand name and solid financial resources.

Although Lloyd Werft participated in the establishment of the Grand Bahama Shipyard, it cannot be considered as an attempt to do a spin-off, but rather just as a geographical diversification.

The case-study companies have not relied on business development units either. Only Marioff from the case-study companies has a business development unit, but even they established it when Marioff became a part of a giant corporate, meaning that the business development unit is more an attribute of a large company. Entrepreneurial senior managers at case-study companies substituted for functions of business development units.

The study leads to the conclusion that entrepreneurial founders or senior managers of the case-study companies play the role of business developers. Similar to the literature (Zahra, 1999), which suggests that the senior managers are required to have different characteristics to lead their companies at different development stages, the owners of SMEs might be tempted to sell their companies and to establish new start-ups to develop their new innovative business ideas, rather than to have spin-offs as larger companies require different approach to management.

8.4.1. 'Democratic dialogs'

In the previous sections it was described that not only did entrepreneurial top management of the case-study companies play a vital role in the development of dynamic capabilities in stable times, but entrepreneurial middle management was essential as well. As previously mentioned, the recruitment of people with the right characteristics was one of the core processes to obtain an entrepreneurial middle management. But how did the research companies nourish innovative people? As described earlier it is important to create an organizational spirit which supports open discussions, innovative proposals and experimentations. There should be confidence in middle management which guarantees that they would not be punished if their experiments failed.

Although the case-study companies do not have formal processes on how to develop entrepreneurial managers, they nevertheless had different routines which enhance extensive communication among employees.

By different routines like Fridays' two-o'clock coffee with cakes, periodical meetings of project managers, sales managers and top executives to discuss different ideas, a fully-equipped canteen which enhances informal communication, Marioff created an atmosphere in the company where people easily share new ideas and are not scared to express constructive criticism.

Similarly to Marioff, Merima's and Lloyd Werft top management also periodically (once per month and once per week respectively) arrange meetings between top and middle managements to analyze innovative ideas and discuss how beneficial they might be for their clients.

These ideas also find support in the literature which suggests that leaders in winning organizations tend to exhibit 'captain-coach' styles and build informal communication networks within the organization (Simon, 2010). According to Du Plessis, Beaver and Nel (2006) suggest that leadership style, organizational culture and strategy are critical for facilitating organizational efficiency.

It is still questionable whether this would work in other cultures. As described before, it is natural for Finnish cultures to have a flatter hierarchy and as two out of three research companies are Finnish, it might be that this would not work in Latin cultures. An example of Lloyd Werft, which represents Anglo-Saxon cultures, might also not be appropriate for South-European companies.

There might be different approaches on how to create entrepreneurial spirit in different cultures, but the senior managers of the case-study companies highlighted that if there is no willingness to make trials and experiments, those companies sooner or later will be outperformed by dynamic, agile companies.

The research companies shared the opinion that companies should have freedom to take calculated risk, to receive fast feedback from the clients and to communicate the results to all employees.

As Du Plessis et al. (2006) writes, 'The core dilemma for leaders and managers is how to maintain stability and at the same time provide creative adaptation to outside forces, change assumptions, technology, working methods, roles, relationships and the culture of the organization'. So, an enabling leader who thinks strategically about the big picture and the long-term and who has a nose for opportunities but a tempered imagination, will get the job done. He or she will foster a flexible, innovative learning culture that will adapt readily to changing times and markets. This is how leadership, strategic thinking and organizational culture enable the integration, building and reconfiguration of resources in volatile economic times (Simon, 2010).

It was concluded that although the case-study companies do not have formal processes regarding how to develop entrepreneurial middle managers, as the case-study of Marioff demonstrates, frequent communication with their very entrepreneurial owner developed an entrepreneurial spirit in the company and enhanced innovative behaviour.

8.4.2. Internationalization

The literature suggests that those who operate globally have the opportunity to gain global perspectives and real understanding of different cultures (Freemantle, 2009/s184;). According to Hill (2011), if a company does not move outside familiar patterns and practice new approaches, it is unlikely to learn.

The marine business is international by definition. It is rather difficult to be just a local player in the marine industry. Most companies in the shipbuilding and ship repair industries have a global approach already because their clients operate around the globe. It is quite common for a shipping company to have offices in every continent and if a supplier wants to render services to such a shipping company, they need to be ready to operate around the world as well.

That is why it is not surprising that the case-study companies are very serious about their internationalization. The top managers of the case-study companies shared the opinion that employees and managers who work in the international context, open up vistas in their mind and give more confidence too. It was found that internationalization develops management capabilities to take a distinctive view.

Actually, internationalization was not just an option for Marioff (product provider) and Merima ('turn-key' solution provider). If a cruise shipping company needs to carry out a revitalisation project on one of its cruise ships, most likely they will consider conducting the project in Palermo (Italy), Hamburg (Germany) or at Free Port (The Bahamas) as these locations have the necessary large docking facilities for cruise ships. In this case, suppliers like Merima or Marioff should be ready to provide their services at any of these locations and of course to remain competitive against local rivals.

One of the findings of the current study is that executives from the case-study companies consider internationalization as a threshold in the shipbuilding industry.

> 'Those Finnish shipbuilding companies who worked only in Finland and served only one client (STX Europe, ex-Aker Yards, ex-Masa Yards) during the last decade became very vulnerable when turbulent times arrived at the end of 2010' (Merima middle manager B).

Indeed, during the whole of the last decade, many Finnish shipbuilding companies enjoyed their stable position in the market: confidence in their client-base, which is one of the core factors of success; deep specialization (during many years Finnish shipbuilding yards built the very same type of cruise ships), which guaranteed efficiency of working processes and consequently competitiveness against newcomers; savings on extensive marketing expenses: there was only one client to serve and there was an influx of orders. From one point of view, those prudent managers, who could use the situation for their benefits, accumulated extensive capital in their companies, which they could subsequently use for adaptation in changing the business environment. From another point of view, their organizational culture was not prepared for any changes at all. They have personnel, who are not fluent in any other

languages except Finnish, who are reluctant to travel, and who are against any organizational changes just because these changes push them out of their comfort zones.

> 'There were no people in most Finnish shipbuilding companies who could understand that the cruise shipbuilding boom would not last forever; and there were no people who wanted and dared to take up the challenge of trying something radically new' (Merima middle manager B).

The case-study companies acted differently. They consider internationalization as a must for their success as much during turbulent times as during stable times. They consider internationalization on a corporate level and on an individual level. Internationalization on a corporate level means that a company operates on a global market and services clients around the world. Internationalization on an individual level means that employees have a chance to work in the international environment, abroad and to be a part of a global business.

The recent world economic crisis has introduced a need for many companies for more accelerated international market entry strategies. Studying the phenomenon of 'internationalization', the researcher came to the conclusion that, those firms who ignored internationalization needs during stable times could not manage their internationalization strategies with the same pace and success as did companies like Marioff and Merima who practice their internationalization strategies all the time.

Although Lloyd Werft has not managed to develop their activities abroad, their several attempts to do this demonstrate the notion of the top management about the importance of the internationalization.

8.4.3. Collaboration between small and medium-sized firms with large enterprises

The literature suggests, that 'a link between small and large enterprises will promote the growth and success of small and midsize companies and revitalize large corporations thought partnerships with innovate SMEs' (Kanter, 2012).

The case-study companies provide three different stories about collaboration of SMEs with large companies. Marioff was well financed since the beginning by the founder and did not need a collaboration partner to finance its development. Marioff was a private independent company until 2006, when it was sold to a large corporate.

Marioff's founder does not see any advantage of close collaboration with a large corporate. He particularly emphasized the importance of being independent from any large company. His arguments are that large companies with their hierarchies and formal procedures substantially decrease the speed of the decision making process, make management heavy and as a consequence the efficiency and the profitability decrease. In his opinion, this has happened with all his companies including Marioff when he sold them to large corporations. The only positive side might be the financing of SMEs development, but although Marioff received almost 100% prepayments of its first orders, as said before it was well financed by its founder and later profitability provided sufficient amounts of cash to finance its fast development.

Merima's example of early collaboration with a large established company demonstrates great possibilities of how a small company can become one of the marker leaders within a relatively short time. In the beginning, Merima was dependant on one core client, but remained independent. The very close cooperation with the client guaranteed Merima a steadily increasing workload. Merima's executives emphasized the importance of extensive communication with clients not only to understand their hidden needs, but together with them to develop a business model which would provide the greatest added-value to the clients. According to Merima's executive it is very important to have the faith of a client. Then it is possible to finance the development by the clients' means, receiving good payment terms. At the same time, Merima's executives highlighted that to be independent even from the core clients is the key.

> 'The best scenario is when there is interdependency between a client and a contractor. This is a win-win situation' (Merima middle manager B).

Although during over two decades Merima have had the very same core client, during the recent world economical crises when this client put too much pressure upon Merima to

decrease the price, Merima walked away from the negotiation table and moved its main resources to the client's competitor in Germany. By doing this, Merima demonstrated its independence and a year later managed to re-establish a good working relationship with their old client and received a big order for the next ship newbuilding project.

In contrast to the Marioff and Merima cases, the case of Lloyd Werft provides a good example of how dependence on large companies can substantially decrease the pace of the development. Unfortunately, due to financial reasons Lloyd Werft had to have financial investors. Some of them did not have any notion of the nature of the ship repair business. This substantially limited the possibilities of the shipyard to develop in terms of international development. The former CEO of Lloyd Werft several times emphasized the importance of having a fast decision making process. Based on its long-lasting experience, he asserted that this is a core requirement for success in the ship repair industry.

> '... if you see a business opportunity, you have to make decisions quickly' (Lloyd Werft, Werner Lüken).

Although it was inevitable to have a financial investor as a partner in the company, this was a reason for losing some business opportunities as well.

The case-study companies demonstrate that it is very important to have good business relationships with core clients, preferably much larger and financially solid companies, which could partly assist in solving the financial difficulties of start-ups or fast development, but it is extremely important to remain independent in order to remain flexible and fast in making decisions, which is absolutely necessary for success in the ship repair and shipbuilding industry.

Actually, only the case of Merima provides evidences to support the research proposition that cooperation between small and medium-sized firms with large enterprises increases the development of dynamic capabilities, while the case of Lloyd Werft demonstrates the contrary. That is why it can be concluded that collaboration with large companies can increase the development of dynamic capabilities on condition that a SME retains its independence and can be self-financed, as in the case of Marioff.

8.5. A summary of supported propositions by case study companies and the found dynamic capabilities and processes of their emergence

proposition	*Marioff*	*Merima*	*Lloyd Werft*
Proposition 1. The potential gain from dynamic capabilities is significant even in stable environments	supported	supported	supported
Proposition 2. The extent of development of dynamic capabilities depends on the extent of entrepreneurship of management at all levels	supported	supported	partly supported
Proposition 3. Low-cost experimentations trigger development of dynamic capabilities	supported	supported	supported
Proposition 4. A different set of dynamic capabilities is needed for SMEs compared to MNEs.	supported	supported	partly supported

The found dynamic capabilities and processes of their emergence can be summarized in the following table:

Table 21. Dynamic capabilities and processes of their emergence at the case-study companies

Dynamic capability	*Processes of creation or/and development*
Entrepreneurial management at all levels (having the capability to sense and seize business trends)	Close and good relations with clients Deep knowledge of possible new regulations Extensive communication with customers and further discussion of new ideas internally Weekly meetings to discuss latest news, innovative ideas, taken initiatives and their results Participation on exhibitions to have extensive communication with clients to get an insight into client's expectations, possible future trends Top management emphasizes the importance of continuous improvement, which substitute a need to change.

Low-cost experiments	Constant experimentation with new business ideas Involvement of client in experiments lead to establishment of closer relationship with them and guarantee a prompt feedback
Capability of the organization to change according to market changes	Taking on a lot of apprentices (10%) Developing skills which are not available in the market Training and analyses of the projects
'Democratic dialogs'	Extensive communication among employees Periodical meetings with all employees and subcontractors to do in-depth analyses of the projects Extensive communication with clients on all organizational levels

Chapter 9. Conclusions

Through an in-depth case-study analysis of three successful companies operating in the shipbuilding industry, the current study provides evidence that, in contrast with the literature (Teece et al., 1997; Teece, 2000) which suggests that dynamic capabilities are capacities of a company to reconfigure their resources to meet rapid and radical changes, meaning that the paradigm is applicable only in high velocity environments, the case-study companies developed their dynamic capabilities regardless of whether the time was stable or dynamic and this enabled them to create changes in the markets and outperform rivals who were not prepared to meet rapid and radical changes.

The companies did not follow the conventional approach that shipbuilding was a stable industry. They acted in accordance with principles of very dynamic industries where change is a constant process and means continuous improvement.

The three case-study organizations share similarities in terms of their capacities to develop dynamic capabilities in stable environments. The case-study companies did their move particularly in stable environment, when their biggest rivals enjoyed their dominating positions and everything seemed very stable. A fast and dramatic change could not be expected.

The companies (Marioff to the greater extent and Lloyd Werft to the smaller extent) developed something absolutely new. Marioff invented a product which had not existed before. Merima created a service which had not existed before either. Lloyd Werft found a business niche which was mainly uncovered at all and specialized in it. The case-study companies did not pursue a competitive strategy just to be better than the rivals, offering barely the same products or services, because in such situations competitive advantages are almost invisible. They decided to be radically different. It is evident from the experience of all these companies, that dynamic capabilities should be used not only when a company faces rapid and radical changes, but to develop them a long time before, in order to have a gain from dynamic capabilities even in stable times.

This is one of the main distinctive factors of the case-study companies that they managed to create a market change during stable times, when competitors could not even predict that a rapid and radical change in the industry was very close. The case-study companies learned how to develop their dynamic capabilities in stable environments and then created the turbulence by outperforming rivals.

Other distinctive factors of the case-study companies are related to the processes of emergence of dynamic capabilities.

First, in contrast with the literature (Edmondson, 2011; Isenberg, 2010; Simon, 2010; Augier & Teece, 2010) which does not pay much attention to the role of the senior managers in the process of dynamic capabilities creation, the current case-study demonstrates that in SMEs the senior executive plays the most crucial role in the creation of dynamic capabilities.

A direct correlation was found between the level of capacity of a senior manager to sense new business opportunities and a level of the development of dynamic capabilities in a company. All three case-study companies were developed by very entrepreneurial and charismatic leaders with an extraordinary sense for new business opportunities. Although it can be asserted that such entrepreneurial abilities are innate, the case-study provides evidence that even the innate entrepreneurial abilities require certain processes to benefit from them.

One of these processes was the extensive communication of the senior executives with current and potential clients. The senior managers shared the opinion that the ideas cannot be born in an empty room, they have to be steadily nourished and communication with clients is the best way to understand their potentially hidden needs.

They involved their potential client in creation of new products and services. By doing this they not only gained a loyal clientele, but achieving exactly the results (new products, services, business models) which their clients would appreciate.

Summarizing the process of the development of the entrepreneurial senior managers, an opinion was expressed that every highly entrepreneurial leader has his own recipe and style, but there is no need to try to replicate any one of them. What is really important is to have a high level of discipline. For instance, if it is planned to make tests of a new system in all seas as in different waters the system might have different performance, then it is critically important to pursue the plan until the end despite any possible changes in the economical cycle.

Another process was to have a constant update and deep knowledge of all possible changes in the regulations as they might cause further radical changes in the industry.

It was concluded that the entrepreneurial leader in SMEs who have a high level of capacities to sense and seize new business opportunities, is not only the core element of the emergence of dynamic capabilities, but the most critical dynamic capability itself and without it other dynamic capabilities will not have the same impact on the competitiveness of the company.

Although the case-study companies had the privilege to be led by very entrepreneurial leaders, it was concluded that the case-study companies achieved their success to a great extent due to deliberate actions to create dynamic capabilities.

One such deliberate action is low-cost experiments. The experiments became a key factor in the success of the case-study companies. It was demonstrated that in some cases experiments are needed to imbue confidence in the clients, in other cases to make a low-cost test of new innovative ideas, but what is also very important is that experiments trigger a habit of continuous change which ultimately leads to a need to have continuous improvement. It was concluded that experiments is one of the most important processes in the emergence of dynamic capabilities in the case-study companies.

It was also concluded that abilities and capacities not only of senior executives, but also of middle managers to sense and seize new opportunities were enhanced during a big number of experiments. Thus, the case study led to the conclusion that experimentations are a unique possibility to develop the entrepreneurial skills of top

and middle management, and to foster an entrepreneurial attitude in a company in general. Although, as mentioned before, the entrepreneurial skills of the CEO of the case-study companies are the prevailing dynamic capability, it is necessary to acknowledge the risk which is inevitable if the leader of the company plays too important role in the process of the development of dynamic capabilities.

Although it is argued in the study that at the initial stage of a company development the dynamic capability to have a very entrepreneurial leader is the key for success, as a company grows it is crucial that other senior and middle managers should also have a high level of entrepreneurial skills. Indeed, it was concluded that a routine for carrying out an experiment as a very frequent event in a company triggers the development of entrepreneurial spirit in the company, it was found that the case-study companies also had another process for the development of entrepreneurial middle managers, namely, a process of recruitment and selection of the personnel with the right entrepreneurial characteristics. It was identified that one of the main capabilities the senior managers should possess is their ability to hire and manage entrepreneurial people effectively. Thus, human resource management capability enables them to develop a unique corporate spirit which triggers development of dynamic capabilities.

It was also found that the senior executives of the case study companies were tempted to replace the personnel whose skills and abilities did not meet the changing needs of the market rather than try to develop these abilities. However, it was remarkable that despite such temptations on the part of the senior executives, there were still many entrepreneurial middle managers who were working in their companies for a very long time. This fact demonstrates that the process of recruitment, further selection and keeping the most entrepreneurial middle managers were indeed common to all three case study companies.

Although the senior executives of the case-study companies have not acknowledged the great importance of the entrepreneurial skills of the middle managers, preferring to keep the privilege to sense new business possibilities for themselves, but expecting their middle managers to implement the new ideas innovatively, they did create conditions where it would be possible. Namely, senior managers have close contact

with their subordinates. They organize periodical meetings where they not only articulate their new vision and strategy, but at the same time discuss the ideas of the middle managers as well. This extensive communication between senior managers and middle managers, such routines as periodical meetings with all employees and subcontractors to do in-depth analyses of the projects and extensive communication with clients on all organizational levels, has led to a dynamic capability which is found to be well-developed in the case-study companies and named by Kalliola & et al. (2006) as 'democratic dialogs'.

In contrast with the literature (Zollo & Winter, 2002; Augier & Teece, 2006) which suggests that companies should make knowledge codification and articulation by producing blue-prints, the case-study companies do not have any blue-prints. It was found that the prevailing opinion was that in constantly changing environment (once again, it is remarkable that the case-study companies consider their relatively stable industry as continuously changing) managers do not have time to read, let alone to write blue-prints, especially while every new change is radically different. Even more, the case-study demonstrates that it is important to forget its past and especially success reached in the past as soon as possible and to focus on the next change.

Although the literature (Autio et al., 2000; Barkema & Vermeulen, 1998) does not pay much attention to such dynamic capability as the ability to internationalise, the current study recognises internationalization as an important dynamic capability which the case study companies developed during stable times in order to benefit from this when the velocity of change increased. Also in contrast with the literature (Cegarra-Navarro, 2005; Meyer, 2004; Hitt et al., 2005) which suggests that cooperation between small and medium-sized firms with large enterprises increases the development of dynamic capabilities, the current study does not provide any support for this. On the contrary, it was found that dependence of SMEs on large enterprises may limit the development of dynamic capabilities of the SMEs.

It was suggested that the collaboration between SMEs and MNEs is important, especially at the initial stage of a company's development, but it is crucial to remain

independent, in order to retain the ability to make decisions fast and to remain more flexible.

To summarize, the current case-study demonstrates that capacities of top management to sense and seize new opportunities, low-cost experiments and entrepreneurial behaviour on every managerial level, are the main elements in the development of dynamic capabilities in a stable environment. This can be achieved by creating such routines which would trigger the development of exploration learning, would have reduced structure around responsibilities and priorities, and would provide freedom to create improvisation.

The main conclusions of the current study is that in order to be able to have dynamic capabilities during rapid and radical changes, companies should develop them in stable times; and that in small and medium-sized companies, particularly in the beginning, the extent of development of dynamic capabilities depends on the extent of entrepreneurship of its senior manager, but as a company grows, other dynamic capabilities should be well developed as well in order to weather unpredictable and radical changes. Thus, different dynamic capabilities are needed for SMEs and large companies. The processes of emergence of dynamic capabilities are also different in the case of SMEs compared to large enterprises.

The study demonstrates that inventing their new products, services and business modules, the case-study companies continued to change in order to remain difficult to be imitated, remain agile and flexible, and foremost to create even greater changes.

9.1. Contributions to Knowledge

Firstly, this study contributes to the existing body of knowledge by providing empirical evidence of the importance of the dynamic capabilities paradigm in stable environments. Specifically, this study demonstrated that those companies which develop their dynamic capabilities in stable environments ensure that they are less vulnerable and better prepared when faced with rapid and radical changes. This work extends the study of Zahra et al. (2006), which is one of the few to suggest that 'although dynamic capabilities may be most valuable when the external environment is changing rapidly or unpredictably, a volatile or changing environment is not a necessary component of a dynamic capability', asserting that the dynamic capabilities paradigm is equally valuable during stable times as under conditions of high market volatility. Therefore, the findings of the current study contrast with many dynamic capabilities paradigms, such as (Teece et al, 1997; Moorman & Miner, 1998), which assume that dynamic capabilities are relevant only for companies in high-velocity industries, and provides empirical evidence that dynamic capabilities increase the competitiveness of companies operating in a low-velocity industry such as shipbuilding. The current study not only provides evidence that the dynamic capabilities concept is highly relevant for low-velocity environments, but also seeks to stimulate a discussion on this premise while attempting to provide definitions of stable, dynamic and high velocity environments, which was under-theorised before.

Secondly, this study extends the existing knowledge on the process of the development of dynamic capabilities. As discussed in the introduction, there are many studies on the dynamic capability model which examine firms that are already adapting and operating in fast changing environments. However, there is a somewhat limited amount of research on the emergence of these processes for firms that have moved from or are about to move from static to fast-changing conditions. Thus, one of the primary contributions of the current study is to provide an outline of an emerging organisational paradigm that combines field insight with theory in order to

describe processes of emergence of dynamic capabilities in companies which have experienced changes from stable to dynamic environments. This work has also examined the micro-organizational processes of the development of dynamic capabilities and in this sense it is considered that it has contributed to the body of literature specifically by examining how cognitive and emotive processes in an organization facilitate its ability to reconfigure its capabilities for seizing new business opportunities. Therefore, the study contributes to the understanding of how companies create dynamic capabilities.

Thirdly, the findings in this study suggest that a different set of dynamic capabilities is more relevant for SMEs. The current work demonstrates that case-study companies in the SME category operating in a low-velocity industry use different dynamic capabilities to large companies operating in dynamic industries. The literature (Sapienza et al., 2006) makes little attempt to distinguish between dynamic capabilities and processes of emergence of dynamic capabilities in SMEs and large corporates. In contrast, this study demonstrates that different dynamic capabilities are needed for SMEs.

Fourthly, the study offers new constructs by suggesting that both entrepreneurial top and middle management play significant roles in the creation of dynamic capabilities. The conclusions reinforce the literature that entrepreneurial management on both levels is one of the core dynamic capabilities in SMEs and their capacity to sense and seize new business opportunities is a key element in the reduction of uncertainty, which in turn helps to nourish the development of the organization's core competencies. Although the dynamic capabilities perspective has roots in the resource-based theory (Penrose, 1959), the findings of the current research highlight the need for a shift in the perception of entrepreneurship. In the contemporary complex business environment, dynamic capabilities should be defined not as a capacity to reconfigure currently controlled resources according to new business opportunities, but rather as the capacity of entrepreneurial management on all levels to create resources and capabilities which might not be immediately available, but which might shape the future market.

Fifthly, the finding in the study extends the literature on dynamic capabilities by suggesting that low cost experiments are one of the core dynamic capabilities in SMEs and that these can substitute for extensive R&D activities in MNEs. The work demonstrates that the management within organizations must always strive to explore and test new business opportunities and to develop new capabilities.

Finally, this study suggests that dynamic capabilities developed in low velocity environments by SMEs lead to superior performance and consequently to competitive advantages. Thus, this work contrasts with many studies (Eisenhardt & Martin, 2000; Eisenhardt & Martin, 2002; Zollo & Winter, 2002; Helfat et al., 2007) which assert that dynamic capabilities do not necessarily always provide competitive advantages and may even, on the contrary, jeopardise the competitiveness of firms by burdening SMEs with substantial additional costs concomitant or associated with their development. The findings in this study suggest that the costs of SMEs are proportionately lower and this results in a substantial increase in the firms' competitiveness. Through a case-study method, an explanation was provided for how development of dynamic capabilities in stable times supports companies' sustainability in fast-changing environments. In this regard, support was provided for the dynamic capabilities framework within two contexts – the stable industry and small and medium-sized enterprises.

To summarise, this study contributes to the further development of the theoretical framework of the dynamic capabilities perspective and complements earlier models by identifying how dynamic capabilities have been an inseparable component in the success of the case-study companies, which themselves represent middle-sized shipbuilding companies in Europe and operate in relatively stable environments. The case study has also delineated key differences and advanced the understanding of dynamic capabilities by testing the research propositions set out in the research framework and by citing concrete practical examples rather than merely theoretical models.

9.2. Contributions to Practice

There are a very limited number of empirical studies conducted in the dynamic capabilities field (Pablo et al., 2007).

The uniqueness and distinction of this study lies in the researcher's efforts to explain the process of emergence and development of dynamic capabilities in the organizations in the pursuit of high cognitive levels in order to manage high levels of environmental uncertainty, to nourish the development of core capacities like sensing and seizing new possibilities, and to sustain the organization's competitive advantage.

As previously mentioned, one of the most distinctive features of the current work is that it studies the processes of emergence of dynamic capabilities in companies operating in stable or low-velocity industries, such as shipbuilding. Another unique contribution of the current study is that it focuses on small and medium-sized companies, and claims not only that different types of dynamic capabilities are required, but also that the processes of their emergence differ substantially when compared to large corporates.

The current study provides a fine-grained case study of firms who have sustained over time, while moving from a low-velocity environment to dynamic environments, which can be used as guidance for companies who might be in similar conditions.

The study has identified which processes are critical to the development of dynamic capabilities. These results provide managers with an insight into the strategy that has assisted other successful shipbuilding companies.

The conclusions of this study recommend dynamic capabilities as an integrated framework for any business strategy.

The findings and conclusions of the study provide a clear guidance as to which dynamic capabilities might be more appropriate for companies, particularly SMEs, operating in stable industries.

The current study also suggests a list of processes which managers could adopt in order to develop dynamic capabilities in their organizations.

The case-study companies provide a good example not only of how to sense and seize new business opportunities, but at the same time how to create a market change and outperform rivals, whether they are small agile start-ups or sluggish giants.

Based on the conclusions of the current study, there is a clear message for managers of small and middle-sized shipbuilding companies, namely, that it is crucial to develop dynamic capabilities not only in environments of fast and radical exogenous changes, but also during stable times.

Firstly, stable times can be used as a preparation period for rapidly and radically changing environments, but only in the case where business managers deliberately develop dynamic capabilities by first creating a culture of change in their organisations where there exists a feeling that they should make changes for changes sake.

Secondly, during stable times, competitors may become sluggish, resting on their laurels and consequently proving more vulnerable. Although often they might have the biggest market share, it is getting difficult for them to change. Thus, stable times provide a unique opportunity for more dynamic companies to outperform their sluggish competitors by creating a change in the market. The main concern of the business managers should be how to create such market changes. This is the big difference when compared to the main body of the literature on dynamic capabilities which suggests that the dynamic capabilities paradigm is about adaptation to rapid and radical changes rather than the creation of market changes per se.

In conclusion, stable times should be considered as a unique opportunity to develop dynamic capabilities, create a market change or just become better prepared for turbulent times.

It is suggested that despite the level of volatility in the market it is advised that companies should constantly develop their cognitive skills-base and absorptive capacities for sensing and seizing new market opportunities. This requires the development of entrepreneurial skills on every managerial level since it was found that the critical factor in success was expertise not only in sensing but also seizing business opportunities.

As demonstrated by the case-study companies, it is rather difficult to develop such entrepreneurial skills. Therefore, a great amount of attention should be paid by top managers on employing and selecting the most entrepreneurially-minded employees.

At the same time, top managers should create organizational routines which would nourish and nurture entrepreneurial behaviour so as always to be open for new initiatives, as by periodically conducting organizational or strategic changes, even for their own sake organizations will be kept flexible and ready for changes.

An essential element in the development of entrepreneurial behaviour and the development of dynamic capabilities in general is experimentation. By constantly conducting experiments, organizations stay agile and their teams entrepreneurial.

The biggest challenge which companies face when moving from stable to dynamic environments is a novel set of circumstances, so by continuously practicing experimentation, it is likely that changing conditions will be more familiar and organizations better prepared. It is important that companies practice different kinds of experiments, such as experiments with working methods, organization learning methods, new products and services development, new features of the existing product or the renewal of a business model. Continual experimentation is a key part in the successful development of dynamic capabilities in stable times.

Despite the literature suggestions (Zollo & Winter, 2002) of knowledge codification and formal storing, the current study advises incorporating informal organizational routines which would enhance implicit and explicit knowledge sharing among the members of the organizations. These routines could be periodical meetings or coffee breaks to discuss new ideas.

It was found that the best knowledge creation process is to have extensive communication with clients. It is important not only to ask their opinions but to involve them into experiments, new product development, and finding better solutions. By doing this, the companies not only learn the clients' preferences but also significantly improve business relationships and create trust which is the crucial element in the shipbuilding industry.

Final and probably the greatest contribution of the current study is to demonstrate that dynamic capabilities are relevant for companies operating in stable environments and should be developed with the objective of triggering an industry change and to be on top for this change.

As suggested in the conceptual framework, the current study does not presume to create 'once-and-for-all' solutions but rather to invite business executives to reconfigure their capacities and resources continuously in order to protect their competitive lead by exercising dynamic capabilities.

9.3. Limitations of the study

There are a few limitations of the current study that should be acknowledged.

Firstly, although the case-study companies selected for the current study are evidently observable (Yin, 2003) but still probably triangulation using quantitative methods could add better insight into the understanding of how the findings of the current study contribute to the paradigm of dynamic capabilities, a few more cases could provide more robust understanding of the variation of the findings.

Secondly, the selected case-study companies are medium-sized. It would be useful to get more insight into the processes of the emergence of dynamic capabilities in small, but fully-fledged companies.

Thirdly, as two of three case-study companies are Finnish and the third is located in the northern part of Germany, the findings might have cultural implications. Probably it would be worth conducting a similar case study of companies located in south Europe as many Southern-European companies have a more authoritarian style of management.

Finally, the current study has a focus only on the shipbuilding industry. As marine industry in general is international in its nature, the findings and conclusions might be different in other stable industries which are more regionally-dependent.

9.4. Areas of further research

Further research might be conducted in several directions. Replications of this study in different low velocity industries and in different countries will help overcome the limited generalized nature of the current study.

Another possible avenue might be to conduct a more extensive study of 150 or more companies operating in the European shipbuilding industry using quantitative methods. This would provide triangulation of the data in the current study and potentially lead to more robust conclusions.

This study has not been able to explore and analyse evidence from rival propositions. One example of such rival propositions might be that put forward by Eisenhardt & Martin (2000) that dynamic capabilities can still be too expensive to develop deliberately and that companies might prefer just to rely on '*ad hoc*' problem solving techniques.

The study has not been able to explore processes of emergence of dynamic capabilities in small companies, which might be different compared to middle-sized companies. Thus, further research is needed to move this forward.

Comments from top executives appearing in the study do not suggest that middle managers should pay an essential role in the process of sensing new business opportunities. The senior managers retain these capabilities as their own privilege. At the same time, the current study and other researches (Dixon et al., 2010) provides evidence that a huge risk of business survivability might be involved if the senior manager plays too important a role in the development of dynamic capabilities. This presents an opportunity for further research to study how charismatic leaders could teach their organizations to develop dynamic capabilities independently.

Finally, the literature (Teece et al., 1997; Zollo & Winter 2002; Eisenhardt & Martin, 2000) suggests that dynamic capabilities do not necessarily lead to sustainable

competitive advantages and might be useful only in high-velocity environments. Even more Eisenhardt & Martin (2000) assumed that development of dynamic capabilities in stable times might cause additional burdens and consequently decrease the profitability of companies. Although the findings of the current study provide evidence that potential gain from dynamic capabilities is essential even in stable times, further study could conduct a dedicated empirical study to investigate whether dynamic capabilities can be considered as sustainable competitive advantage.

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A list of tables and figures