

# Effects of market orientation on business performance

Environmental moderators,  
effectiveness and efficiency mediators  
and the role of firm capabilities

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## **PREFACE**

When selecting the topic for this master thesis in marketing, I considered alternative topics based on several criteria. It was, of course, important to choose a topic of my personal interest, but I also considered to what extent alternative topics were universally relevant and provided a wide platform for both job opportunities and potential further studies, and the research methods relevant for different topics. Market orientation is considered a corner stone of marketing management literature, and the concept and theory of market orientation can be approached from different angles. I like the fact that market orientation is closely connected to both the general business strategy-level of organizations as well as to the day-to-day operational level. This provides a sense of universal importance and applicability of the selected topic.

Several people have contributed to the project and the creation of this thesis, and truly deserve my greatest appreciation: Loving husband Tor Arne for his patience, and 100% support and encouragement; fellow student Mia Helgesen for a great data collection cooperation; colleagues at Telemark University College, and especially the amazing Assistant Professor Judith McGuinness Torvik for revising my English; think-loud protocol participants Jon Kvisli, Ingrid Sundbø, Tove Bøe, Øystein Sørebo and Per-Christian Nilsen; MI Pro for technical support; and ICT Norway for information and help. Finally, I owe special thanks to my highly competent advisors, Professor Kåre Sandvik and Assistant Professor Boge Gulbrandsen for their guidance, constructive feedback and discussions.

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## **ABSTRACT**

Market orientation, centered at the very heart of marketing management literature, is argued to influence a firm's performance, and this relationship has received considerable research attention. It is, however, argued here that to hypothesize and empirically test the direct effect of market orientation on business performance is an inadequate simplification of a very complex causal relationship. Two arguments evident in the literature are adopted in this study: (1) the proposed moderating role of environmental factors, and (2) the proposed mediating role of effectiveness and operational efficiency, forming the basis for the two research models developed in this study. Additionally, the concept of firms' capabilities for market oriented innovation is brought into the discussion, and an exploratory approach is applied for the investigation of how and to what extent market orientation engages with such capabilities in producing performance outcomes.

The findings support the moderating effects of environmental factors, and indicate that this proposition should be further developed by including other environmental factors to the analyses. Further, the results strongly indicate that market orientation affects business performance through routes of intermediate factors, and thus has a stronger impact than studies of direct performance effects have been able to identify. As for the role of firm capabilities, it is evident that they do indeed engage with market orientation in producing organizational results. Firm capabilities were found both to moderate profitability outcomes of market orientation and to mediate effects of market orientation on effectiveness.

Theoretical and managerial implications are discussed, and limitations and a framework for future research are presented.

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# 1 INTRODUCTION

The concept of market orientation is considered a corner stone of the marketing management field and emerged in the literature as the implementation of the marketing concept (Goldman and Grinstein, 2010; Kirca, Jayachandran and Bearden, 2005). The marketing concept is essentially a business philosophy where superior financial performance is considered to be the result of being more effective than competitors in determining and satisfying customer needs. Market orientation is conceptualized as a supplement to the marketing concept as it expands the focus from customer to market, including both customers, competitors and exogenous factors affecting customer needs (Goldman and Grinstein, 2010; Hunt and Morgan, 1995; Kohli and Jaworski, 1990; Narver and Slater, 1990). As the marketing concept and the concept and theory of market orientation aim at explaining why some firms achieve greater performance than their competitors, this is the closest thing the field of marketing management has to its own competitive theory (Van Raaij and Stoelhorst, 2008). Also, market orientation is acknowledged by practitioners as an important characteristic of successful enterprises, as Deutschman (1991) find that America's fastest growing companies primarily put the customers first, and listen to, understand and serve them.

The past two decades the main focus of market orientation research has been studying the potential consequences of market orientation, and the market orientation – business performance relationship has been of particular interest (Cano, Carrillat and Jaramillo, 2004; Goldman and Grinstein, 2010; Kirca et al., 2005). The majority of findings are indeed positive and significant regarding business performance effects of market orientation, and there seems to be a wide consensus about the existence of these effects. However, the variance of business performance explained by market orientation is generally rather low, leaving a substantial amount of variance in performance unaccounted for (Cano et al, 2004; Ellis, 2006; Han, Kim and Srivastava, 1998; Kirca et al., 2005). Meta-analytical findings indicate that the average variance explained found in the literature is somewhere in the range of between 6% (Ellis, 2006) and 12% (Cano et al., 2004). Kirca et al. (2005) report a range of explanatory power of the studies included in their analysis from zero to 62% and an average of about 10%, but also report evidence of negative effects of market orientation on business performance. This low average of explanatory power may have limited the strategic value of market orientation for

managers (Han et al., 1998). However, the low average and wide range of variance explained also indicate that some pieces of this puzzle might still be missing, and research efforts should be made in order to identify them. Three distinct, but complementary scenarios, are hypothesized and empirically tested in this study: (1) the extent to which the performance consequences of market orientation are dependent on external factors, (2) to what extent performance effects of market orientation depend on the firm being able to achieve effects of their market orientation on intermediate factors, and (3) whether a successful market orientation is dependent on a firm's innovative capabilities.

Kohli and Jaworski (1990) argue that the marketing concept may not be universally relevant because some firms operate under conditions where the need for a market orientation is limited and the performance effects of market orientation are likely to be minimal. They propose that certain contingencies may moderate the market orientation – business performance relationship, and specifically identify four potential moderating environmental factors: market turbulence, technological turbulence, competition, and general economy. However, the proposition that environmental factors may moderate the market orientation – business performance relationship has received mixed empirical support (Kirca et al., 2005). Slater and Narver's (1994a) investigation of the potential moderating effects of environmental factors resulted in minimal support, after which they argue that market orientation is important for all firms and can never be negative regardless of the environmental circumstances. Two points can, however, be made regarding their study of and lack of empirical support for effects of environmental factors. First, they may not have been able to draw a complete picture of the environment with the factors included in their study, which can only be done by hypothesizing a complete set of environmental factors. Second, Slater and Narver (1994a) limit their sample to a total of 117 strategic business units within one forest product company and one manufacturing company, an empirical setting that may be quite homogeneous. Forest products are likely to be highly generic and the industry is likely to be mature. Cano et al. (2004) also find that the market orientation – performance relationship is generally weaker for manufacturing than service firms, indicating that such firms may operate in rather stable environments. Hence, the variance in the environmental factors is likely to be low within the selected empirical setting of Slater and Narver (1994a), and conducting the study in a more dynamic setting could produce different results.

Based on the limited attention drawn to this proposition in the literature, the inconclusive empirical findings, and the limitations of previous research, the issue of environmental moderators appear to be unresolved, leading to the first research question of this study.

*Research question 1:*

*How, and to what extent, are business performance effects of market orientation dependent on the environmental conditions under which firms operate?*

The majority of research of the market orientation – business performance relationship has focused on direct performance effects. However, market orientation is also argued to influence business performance indirectly through different routes of mediators (Kirca et al., 2005). Proposed and, to some extent, empirically tested mediators evident in the literature include product and organizational innovation (Han et al., 1998; Kirca et al., 2005; Sandvik and Sandvik, 2003; Slater and Narver, 1994b), quality of products and services, and customer satisfaction and loyalty (Kirca et al., 2005; Slater and Narver, 1994b), new product success (Langerak, Hultnik and Robben, 2004; Slater and Narver, 1994b), capacity utilization (Sandvik and Sandvik, 2003), market share (Slater and Narver, 1994b), and sales growth (Sandvik and Sandvik, 2003). These potential outcomes of market orientation mediating business performance effects are consistent with the underlying rationale for the hypothesized direct performance effects. As this rationale includes multiple intermediate factors, the performance outcomes of a market orientation are likely to be dependent on whether or not a firm's market orientation actually produces these intermediate results. Hence, indirect effects of market orientation on business performance may account for additional variance in business performance, and is addressed by the second research question of this study.

*Research question 2:*

*How, and to what extent, are business performance effects of market orientation mediated through achieved effects on intermediate factors?*

Market orientation is argued to enable firms to identify potential competitive advantages and to create new products and services to satisfy the needs of customers (Kohli and Jaworski, 1990; Narver and Slater, 1990), and innovation and innovativeness are argued to mediate

performance effects of market orientation (Han et al., 1998; Kirca et al., 2005; Sandvik and Sandvik, 2003). However, market orientation essentially provides information, and although that information provides insights and understanding, successful product development efforts depend on the extent to which a firm is capable of utilizing that information effectively. The concepts of innovation are generally measured as the frequency or rate of innovations such as the number of new products and services implemented, which may not be a very strong indicator of a firm's ability to use the market intelligence which is generated and disseminated. Hence, a market orientation may be a necessary but not satisfactory condition for successful innovation and product development efforts, and the business performance effects of market orientation may depend on the firm's capabilities to base their development efforts on market intelligence. This is expressed by the third research question.

*Research question 3:*

*How, and to what extent, do ordinary and dynamic capabilities engage with market orientation in affecting business performance?*

## **1.1 Organization of the thesis**

The thesis comprises six chapters. In Chapter 2, the theoretical framework for developing the research models and hypotheses is presented. A thorough explication of the concept of market orientation is provided, before consequences of market orientation, environmental moderators, and the role of ordinary and dynamic capabilities are discussed.

Chapter 3 presents the two research models and accompanying hypotheses. The research methods applied in this study are discussed in Chapter 4, and the results of the empirical analyses and hypotheses tests are presented in Chapter 5. In Chapter 6 the results, implications and limitations of this study are discussed, and directions for future research is provided.

## **2 THEORETICAL FRAMEWORK**

In this chapter, the theoretical framework of this study is presented. First, the concept of market orientation and the major conceptualizations evident in the literature are presented and discussed in Chapter 2.1, with the purpose of providing a basic understanding of the focal concept of this study and deciding what operational definition to apply to this study.

Next, Chapter 2.2 presents a review of the different hypothesized and empirically tested consequences of market orientation. The chapter includes proposed moderators of the business performance outcomes of market orientation and an expansion of the general proposition of environmental moderators to include a somewhat more complete set of environmental factors and a typology of business environment. Proposed intermediate factors which potentially mediate indirect effects of market orientation are discussed subsequently.

Third, ordinary and dynamic capabilities are added to the discussion in Chapter 2.3. A general overview of the resource-based view is presented, and the conceptual similarities and differences between resources, ordinary and dynamic capabilities and the market orientation concept are discussed.

Finally, a summary of the theoretical framework is provided with an overview of the concepts included in the study, definitions and theoretical origins in Chapter 2.4.

## **2.1 The concept of market orientation**

The concept of market orientation originated from the roots of modern marketing literature and the understanding of marketing as a field, and emerged as the implementation of the marketing concept. The marketing concept is essentially a business philosophy (Kohli and Jaworski, 1990) and holds that marketing is the principal function of the firm because the key to achieving organizational goals consists of being more effective than competitors in integrating marketing activities toward determining and satisfying the needs and wants of target markets (Kotler, 2009). Market orientation serves as a supplement to the marketing concept describing the activities and behaviors associated with the development of market intelligence and knowledge (Hunt and Morgan, 1995).

Two main contributions brought the market orientation literature into a new era as they each presented their own definitions of market orientation, both with the intention to provide an operative understanding of the marketing concept to theory as well as practice (Kohli and Jaworski, 1990; Narver and Slater, 1990). These contributions mark a shift of focus of the literature, from a descriptive and conceptual focus on the marketing concept as a business philosophy to a theory testing focus where empirical evidence is gathered and analyzed (Goldman and Grinstein, 2010). Providing operational definitions, measurement scales and a purposed theory of market orientation, the two contributions also resulted in a substantial growth in the amount of published market orientation literature (Goldman and Grinstein, 2010; Liao, Chang, Wu and Katrichis, 2011). Despite their common objective to provide an operative understanding of the marketing concept, Kohli and Jaworski (1990) and Narver and Slater's (1990), definitions of market orientation differ on several levels. In the following sections, the two definitions will be presented and discussed in terms of their differences and similarities, their strengths and weaknesses, and their standings in the literature. Based on this discussion, one conceptualization of market orientation is argued to be preferred over the other and adopted for the purpose of this study.

### **2.1.1 Cultural definition of market orientation by Narver and Slater**

Narver and Slater (1990) argue in line with strategic management literature that a firm's ability to achieve above-normal performance depends on it being able to create a sustainable



competitive advantage through the creation of superior value for customers. Further, they argue that in order to do so, the firm must have an organizational culture that is driven by a desire to create superior value for customers. Organizational culture refers to the norms and values among the employees of the organization, and Narver and Slater (1990) argue that organizations must create and maintain a culture that will generate the behavior necessary to achieve and sustain competitive advantages. Narver and Slater (1990) define market orientation as follows:

*“Market orientation is the organizational culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business.”*

*(Narver and Slater 1990; 21)*

As they develop a valid market orientation construct, Narver and Slater (1990) argue that market orientation consists of three behavioral components; customer orientation, competitor orientation and interfunctional coordination, and two decision criteria; long-term focus and profitability. *Customer orientation* refers to all activities that enable organizations to develop a sufficient understanding of how to create value for their current and potential customers. *Competitor orientation* refers to the activities associated with creating knowledge about current and potential competitor strengths and weaknesses, capabilities and strategies. This includes both acquiring information about customers and competitors, and disseminating it across the organization. *Interfunctional coordination* is the third behavioral component and refers to the coordinated effort and resource utilization of the organization as a whole to create superior value for its customers. Narver and Slater (1990) stress that market orientation and the three behavioral components are the responsibility of all departments and all members at all levels of the organization. They argue that this must be the common focus of the entire firm in order for the firm to succeed in continuously creating superior value for its customers, and thus a sustainable competitive advantage.

The two decision criteria that Narver and Slater (1990) include in the market orientation construct are long-term focus and profitability. They argue that both a long-term perspective and the main objective of profitability are necessary to survive with the presence of competition.

### **2.1.2 Behavioral definition of market orientation by Kohli and Jaworski**

Kohli and Jaworski (1990) employ the marketing concept as their conceptual starting point for developing an operative conceptualization of market orientation. Based on extensive literature and field research they identified three aspects: intelligence generation, intelligence dissemination, and responsiveness, which they demonstrate are important components of a market orientation. The *generation* of market intelligence refers to the gathering of information about the market. Market intelligence is a wider perspective than the traditional view of the marketing concept of simply identifying customers' needs. As Kohli and Jaworski discovered in their field research, this term includes both existing and potential customer current as well as future needs and preferences and all exogenous factors that may influence these preferences, such as competitors, government regulations, technology and other environmental factors. Kohli and Jaworski (1990) argue that intelligence generating activities should be carried out in all departments and levels of the organization, and that this should not just be assigned to the marketing department. While the marketing department will perform traditional market research and customer satisfaction inquiries, people in other parts of the organization will have access to other kinds of information about customers and their preferences and experiences, about technological developments and so on.

The *dissemination* of market intelligence refers to how and to what extent the generated market intelligence is communicated to others within the organization in order to create a common understanding and unifying focus within the firm. This dissemination is important in order for the organization to respond effectively to new information about the market, which is the third dimension of the market orientation construct. *Responsiveness* refers to the concerted actions made by the organization to comply with the conditions in the market: selecting target markets, developing products and services.

Kohli and Jaworski (1990) point out that the generating, disseminating, and responsive activities are likely to be both formal and informal and stress that the entire organization must be involved, additionally, that a successful market orientation anticipates future market developments and respond accordingly. This activity is expressed in their behavioral definition of the market orientation construct:

*“Market orientation is the organizationwide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organizationwide responsiveness to it.”*

*(Kohli and Jaworski 1990:6)*

In addition to providing an operational definition of the market orientation construct, Kohli and Jaworski (1990) developed a comprehensive framework of research propositions, constituting a theory of market orientation. This additional contribution has also made a substantial impact on the development of the market orientation literature and the marketing field as it provided a guide for researchers. Today the majority of market orientation research draws on this framework (Kirca et al., 2005). The framework comprises of four sets of factors: (1) antecedent factors that foster or impede the implementation of market orientation, (2) the market orientation construct, (3) consequences of market orientation, and (4) environmental factors moderating the market orientation – business performance relationship (Kohli and Jaworski, 1990).

### **2.1.3 Discussion**

Other definitions of the market orientation concept are evident in the literature (e.g. Deshpandé and Farley, 1996; Ruekert, 1992), but the two presented in the previous sections stand out as they have had the far most significant impact on the development of the market orientation literature. As the two definitions represent somewhat different interpretations of what market orientation actually is, they have originated two parallel lines of research. The difference between these lines of research, however, is restricted to how market orientation is defined and operationalized. Both lines of research are in fact based on the comprehensive framework developed by Kohli and Jaworski (1990) in terms of studying antecedents to and consequences of market orientation. Narver and Slater (1990) are in line with this framework as far as the proposed positive performance outcomes of market orientation goes, but limit their scope of consequences to business performance and do not address potential antecedents.

The two definitions certainly have their distinct differences, but they do in fact also have strong similarities and elements upon which they agree. Despite the fact that researchers make

a choice as to which definition of market orientation they apply to their studies, it is also important to acknowledge that both definitions and interpretations of the concept of market orientation contribute to insights and perspectives that are more complementary than contradictory. This may also indicate an important reason why the two definitions seem to be equally extensively used (Cano et al, 2004; Deshpandé and Farley, 1998; Matsuno, Mentzner and Rentz; 2005).

The primary distinction of the two definitions is the explicit organizational dimensions they are developed from. Kohli and Jaworski's (1990) definition is based on a behavioral dimension interpreting market orientation as a specific set of activities and behavior which is consistent with the underlying assumption of the marketing concept which insists that firms must be able to identify and satisfy customer needs more effectively than competitors to achieve organizational goals (i.e. profitability). Narver and Slater (1990) build their definition on the cultural dimension of organizations, which refer to a certain set of norms and values within an organization putting customer interests first. Both approaches, however, are concerned with culture as well as behavior, and they also agree that organizational culture may result in market oriented behavior. The difference is that Kohli and Jaworski (1990) view culture as a separate concept and a proposed antecedent, while Narver and Slater (1990) view both culture and the subsequent behavior as parts of the market orientation construct.

Despite this distinct difference, the two interpretations have quite similar views of the content of the market orientation construct. Each focuses on customers and competitors as the main factors of interest, but as Narver and Slater (1990) includes customer and competitor orientation as two of the behavioral components of the construct, Kohli and Jaworski (1990) focus on the market and market intelligence and include both customers, competitors in addition to other exogenous factors that may influence customer needs and preferences. In their study of environmental moderators, Slater and Narver (1994) elaborate on how firms place relative emphasis on either customers or competitors depending on the competitive environment. Kohli and Jaworski's (1990) main concern is the customers and their preferences, and competitors are included as one of a number of different factors that affect customer needs.

The two definitions are also consistent regarding their long-term focus as they both argue that firms must gather information about both current and future customers (and competitors) in

order to anticipate the future needs of current and potential target markets. The importance of involving all levels and departments of organizations in market oriented activities in order to gain a common understanding and a unified focus is also stressed in both cases. When information about the market is successfully gathered or generated in all parts of the organization, and that information is disseminated throughout the organization, both Kohli and Jaworski (1990) and Narver and Slater (1990) argue that the organization also must initiate a coordinated response by developing products and services to satisfy customer needs and implementing competitive action in response to competitor moves.

One aspect Narver and Slater (1990) more explicitly address is that market orientation leads to sustainable competitive advantages because better knowledge and understanding of the needs of customers and the strategic actions of competitors enable organizations to create superior value for customers. Kohli and Jaworski (1990) are also concerned with this aspect, but they leave this subject somewhat more implicit. Thus, Narver and Slater (1990) make an important clarification because the creation of sustainable competitive advantages is considered a major antecedent to above-normal performance. This contributes both to highlighting the importance of market orientation as a strategic management field of research, and to the elaboration of the market orientation – performance relationship.

The market orientation – performance relationship is a major concern in both cases, but while Narver and Slater (1990) limit their scope of performance to profitability measures, Kohli and Jaworski (1990) suggest both business performance outcomes such as profitability, market share and sales growth, and other desirable consequences such as customer satisfaction, repurchase, employee job satisfaction, team spirit and organizational commitment.

So far, the two definitions of market orientation have been discussed. This discussion, however, is not complete without addressing the measurement scales of market orientation. Both of these 1990-contributions developed their own measurement scales based on their definitions of the market orientation concept. Therefore selecting one definition over the other also means selecting one measurement scale over the other, and it is important to consider their strengths and limitations.

Based on their behavioral definition of the market orientation concept, Jaworski and Kohli (1993) developed the 32-items scale of market orientation MARKOR which was refined and limited to a 20-items scale by Kohli, Jaworski and Kumar (1993). The items are designed to

measure the three behavioral dimensions organizationwide *generation* and *dissemination* of, and *responsiveness* to market intelligence. Narver and Slater (1990) developed the 15-items MKTOR-scale reflecting their three behavioral components of their cultural definition: *customer orientation, competitor orientation* and *interfunctional coordination*.

Both measurement scales have provided a large number of significant results regarding not only antecedents to but also consequences of market orientation in the literature (Kirca et al., 2005). Several studies comparing the two, however, show that the MARKOR-scale seems to provide greater explanatory power with regard to the relationship between market orientation and performance than the MKTOR-scale (Cano et al., 2004; Deshpandé and Farley, 1998; Matsuno et al., 2005).

Of the two measurement scales, the MARKOR-scale seems to be more closely related to the market orientation definition, while MKTOR has received substantial critique regarding the lack of items addressing the cultural aspects that they emphasize in their definition.

Deshpandé and Farley (1998) point out that 13 of 15 items measure behavior and activities rather than organizational culture despite Narver and Slater's (1990) interpretation that market orientation is essentially an organizational culture. Matsuno et al. (2005) reject Narver and Slater's (1990) definition and the MKTOR-scale based on two main issues: the lack of consistency between the cultural definition of market orientation and the behavior-oriented measurement items, and the fact that even though an organizational culture promoting market oriented behavior exists, the corresponding behavior does not necessarily take place.

The MARKOR-scale has been criticized for limiting its market focus to customers and competitors, and for including limited items regarding other exogenous factors such as government regulations, technology, suppliers and stakeholders that may potentially influence the evolution of customer needs (Kohli et al., 1993; Matsuno et al., 2000). Another issue with this scale is that the three dimensions of the construct are difficult to distinguish and thus the items may not reflect the theoretical dimensions as well as one would want (Kohli et al., 1993; Matsuno et al., 2000).

Other critical points have been made regarding the MARKOR-scale and aspects relevant to the assessment of an organization's market orientation that the scale fails to take into account, some of which are equally relevant with regard to the MKTOR-scale. One is the issue of quality of both the documented market oriented behavior and the information it provides

(Cadogan, Souchon and Procter, 2008; Jaworski and Kohli, 1996). This issue is not addressed in either scale, a limitation that may inhibit the applicability of the market orientation measurement scales for practitioners. Consequently, organizations may document a high degree of market orientation in terms of scores in either scale, but risk that a low quality market orientation results in high costs or even failure in the market place due to the lack of correct market intelligence.

Another point, addressed by Sandvik and Sandvik (2003), is the importance of consistency among the three dimensions of market orientation. They argue that a firm documenting even scores on the three dimensions, meaning that all generated intelligence is disseminated and responded to, is more market oriented than firms with uneven scores. Both MARKOR and MKTOR are normally treated as additive indexes, rewarding high scores over even scores. To overcome this issue they suggest treating market orientation as a multiplicative index, rewarding balance among the dimensions.

The same issue may be discussed in regard to the MKTOR-scale, as it is also designed to measure three behavioral dimensions. It would make sense to reward firms documenting a certain balance among these components. However, as Slater and Narver (1994) point out, firms may find either a customer or a competitor orientation more appropriate due to different environmental conditions, indicating that the additive index may be more appropriate to avoid punishing organizations that may indeed spend their resources efficiently by placing a relative emphasis on either customers or competitors.

Based on these shortcomings of the measurement scales, a number of attempts have been made to refine and develop new market orientation scales that capture all relevant dimensions. However, none have been successful in terms of establishing a new, widely agreed upon measurement scale that is adopted by a majority of market orientation researchers. The MARKOR and MKTOR-scales still seem to dominate the literature.

#### **2.1.4 Summary**

In the current study, the behavioral definition of Kohli and Jaworski (1990) and their MARKOR-scale are applied for the following reasons: First, defining market orientation from a behavioral perspective seems more appropriate as it is the actual behaviors, activities and

processes within organizations which result in offering customers products and services of superior value. Although a market oriented organizational culture is likely to have a positive impact on these activities, and organizations with a non-market oriented culture is likely to behave in a less market oriented manner, culture is to be viewed as an antecedent and not a part of the market orientation construct. Second, the behavioral definition of market orientation is more in line with the marketing concept which highlights the importance of the identification and satisfaction of customer needs, both of which may only be obtained through action. Third, the MARKOR measurement scale seems to be more in line with the market orientation definition, and fourth, the MARKOR-scale seems to outperform MKTOR in terms of variance explained.



## 2.2 Consequences of market orientation

In their comprehensive framework Kohli and Jaworski (1990) proposed three categories of consequences of market orientation: relative business performance, customer responses, and employee responses. In their refinement of the framework, Jaworski and Kohli (1996) add innovation consequences as a fourth category.

*Business performance* includes financial performance measures such as profit, sales, and market share as well as global measures of overall business performance. Kohli and Jaworski (1990) argue that a market orientation facilitates clarity of focus and vision in a firm's strategy and provides a unifying focus for the efforts and projects of individuals and departments (Kohli and Jaworski, 1990: 13), and proposes that market orientation contributes positively to business performance. Narver and Slater (1990) emphasize that market oriented firms are able to understand how to create superior value for customers and realize competitive advantages, which in turn leads to superior financial performance. Similarly, Day (1994) argues that a market orientation provides firms with market-sensing and customer-linking capabilities, enabling firms to develop market offerings in tune with customer needs.

*Customer consequences* refers to concepts such as perceived quality, customer satisfaction and customer loyalty, which in turn contribute to repeat business, customers spreading the good word, and firm reputation (Kohli and Jaworski, 1990). Narver and Slater (1990; 1994) do not include customer consequences in their studies, but they do argue that market oriented firms are better able to anticipate and satisfy the needs of customers and create superior value for their buyers.

As for the *employee consequences*, it is argued that market orientation will create a sense of pride and common purpose among employees, leading to higher team spirit, job satisfaction, customer orientation and organizational commitment (Kohli and Jaworski, 1990; Jaworski and Kohli, 1993; 1996).

*Innovation consequences*, such as innovativeness and new product success, are proposed for market oriented firms because they are expected to be better able to create and implement new product ideas and process improvements (Jaworski and Kohli, 1996; Kirca et al., 2005). A market orientation is argued to drive a continuous and proactive disposition toward satisfying customer needs (Kirca et al., 2005).

The investigation of the variety of consequences of market orientation has been the main focus of market orientation research since 1990. A large number of consequences have been hypothesized and empirically tested, and the findings are consistent with Kohli and Jaworski's (1990; 1993) arguments regarding all four categories of consequences (Cano et al., 2004; Goldman and Grinstein, 2010; Jaworski and Kohli, 1996; Kirca et al., 2005). The market orientation – business performance relationship has received by far the most attention and there is a wide consensus of the positive business performance outcomes of market orientation (Cano et al., 2004; Goldman and Grinstein, 2010; Kirca et al., 2005).

However, despite the general positive findings in the literature, a notable number of studies report low explanatory power, non-significant effects or even negative performance outcomes of market orientation (Jaworski and Kohli, 1996; Kirca et al., 2005; Kohli and Jaworski, 1993). Meta-analytical findings reveal an average explanatory power somewhere in the area of between 6% (Ellis, 2006) and 12% (Cano et al., 2004). Kirca et al. (2005) find an average of 10%, but document a wide range of explanatory power as some studies included in their analyses report zero variance in business performance explained by market orientation while others document more than 60% variance explained. Also, Kirca et al. (2005) include studies reporting negative effects of market orientation on business performance. Jaworski and Kohli (1996) regard this relationship as the most difficult one to investigate, and the low average and wide range of explanatory power indicate that there are unresolved issues regarding how market orientation contributes to business performance and which conditions may influence this relationship (Cano et al., 2004; Jaworski and Kohli, 1996; Kirca et al., 2005).

Two approaches to explicating the complexity of the market orientation – business performance relationship are evident in the literature. First, Kohli and Jaworski (1990) argue that some firms operate under environmental conditions where the business performance effects of market orientation are limited, and thus the need for a market orientation is minimal, while other environmental conditions indeed may contribute to a great influence of market orientation on business performance. Hence, they expect environmental conditions to moderate the market orientation – business performance relationship. This approach is discussed in Sections 2.2.1 and 2.2.2. Second, it is argued that the influence of market orientation on business performance may not be primarily direct, and that the business

performance outcomes depend on the extent to which a firm's market orientation contributes to a number of intermediate factors. The indirect effect approach is discussed in Section 2.2.3.

### **2.2.1 The moderating role of environment**

The comprehensive framework developed by Kohli and Jaworski (1990) includes proposed moderating effects of environment on the market orientation – performance relationship. Kohli and Jaworski (1990) state that a firm's need for being market oriented is affected by conditions in their environment. They further argue that firms operating in dynamic and continuously changing industries, characterized by high degrees of competition and fighting for customers, have to be market oriented to survive. In addition, firms that are able to be more market oriented than their competitors will enjoy greater success in terms of greater performance. On the contrary, firms operating in industries where the competitive situation is stable may not experience positive performance effects of being market oriented, thus a market orientation is not needed. Specifically, they identified competitive intensity, market turbulence, technological turbulence, and general economy as potential moderators of the market orientation – performance relationship and argued that these factors were strong indicators of the competitive environment in an industry (Kohli and Jaworski, 1990).

*Competitive intensity* refers to the degree of competition and competitor resources, abilities and actions to differentiate (Jaworski and Kohli, 1993). Competitive intensity is likely to be greater in industries with large numbers of competitors (Kohli and Jaworski, 1990; Jaworski and Kohli, 1993). In markets characterized by high degrees of competitive intensity, Kohli and Jaworski (1990; 1993) argue that customers will be able to choose among the products and services of multiple firms, and these firms will continuously attack each other on a number of different strategic dimensions (Slater and Narver, 1994a). In such markets, keeping up with both competitor moves and customer needs is crucial to be able to create market offerings preferred by customers (Jaworski and Kohli, 1993; Slater and Narver, 1994a).

*Market turbulence* refers to the rate of change in the composition of customers and their preferences (Kohli and Jaworski, 1990). In industries where market turbulence is high, customer needs seem to change quite rapidly, forcing firms to consider modifying their products and services continually to be able to satisfy the changing preferences of customers

(Kohli and Jaworski, 1990). Thus, firms that are better able to anticipate and satisfy customer needs are expected to enjoy greater firm performance (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Slater and Narver, 1994a).

Kohli and Jaworski (1990) define *technological turbulence* as the rate of change in the process of transforming inputs to outputs and the delivery of those outputs to the end customer. When technological turbulence is high, firms which fail to keep up with the technological changes may not survive; firms which operate in technological turbulent industries will enjoy greater performance effects of focusing their attention on the technological developments. Because a market orientation entails a primary focus on customers and their needs, Kohli and Jaworski (1990) argue that market oriented firms will experience a weaker market orientation – performance relationship because an orientation towards technology is more appropriate.

Kohli and Jaworski (1990) propose that the *general economy* in a market may influence the performance outcomes of a firm's market orientation. They argue that when the general economy is strong, demand is high and all firms within an industry are able to sell their products and services, therefore firms may be able to “get away with” low degrees of market orientation under such conditions. When the general economy is weak, they argue that customers will be more value conscious and firms are forced to be more responsive to customer needs.

In line with Kohli and Jaworski's (1990) general statement that environmental conditions affect the need for a market orientation in terms of strengthening or weakening the performance effects of a market orientation, other potential environmental moderators have been hypothesized. This includes factors such as competitor hostility and concentration, market growth and buyer power (Slater and Narver, 1994a). In addition, ease of entry and supplier power (Narver and Slater, 1990), distance to, diversity of, and dependence on markets (Ellis, 2007), and customer network size and diversity (Ellis, 2010) have all been hypothesized to have direct impact on a firm's level of market orientation. All these other factors, however, are only evident in single studies or addressed by one team of researchers, while competitive intensity, market turbulence and technological turbulence have been hypothesized and empirically tested in a somewhat larger number of studies and by several

independent teams of researchers (Bhuan, 1998; Dwairi et al., 2007; Kirca et al., 2005; Slater and Narver, 1994a).

Despite these efforts, the results are somewhat inconclusive as these hypothesized moderating effects have all received mixed support. Interestingly, nine of the 20 studies of environmental moderators included in the meta-analysis of Kirca et al. (2005) report full or partial support as at least one of the hypothesized moderators are found to be significant. Thirteen of the 20 studies only report testing the hypothesized moderating effects of one or two factors, and of the seven studies that include all three hypothesized moderators, two report no significant results. Also, Gray et al. (1999) argue that the majority of the studies reporting partial or no support for these hypotheses can be criticized for methodological shortcomings such as empirical settings where variation in environmental factors is likely to be minimal (e.g. Slater and Narver, 1994a), analyses limited to sub-group analyses only testing homologizer effects (e.g. Bhuan, 1998; Jaworski and Kohli, 1993), or secondary data collected for different purposes are applied (e.g. Cadogan, 1997). Additionally, the origin of these factors also seems to be somewhat coincidental and, even though several of these factors are similar to environmental factors identified and described elsewhere, not in line with other bodies of research concerned with industry factors such as the industrial organization literature.

These shortcomings indicate several points that should be addressed. First, the findings reported in the meta-analysis of Kirca et al. (2005) indicate that the potential moderating effect of environment remains an unresolved issue and the attention of researchers is called for. Second, to include one, two or three environmental factors may not provide a complete picture of the environments under which firms operate, and different factors may be relevant for different industries and settings. Hence, identifying additional environmental factors could contribute to a more complete picture and understanding of how and to what extent the business performance effects of market orientation depend on these situational factors. Third, the selection of an empirical setting should be based on the objective to observe satisfactory variation in the environmental parameters, and fourth, a complete moderator analysis in line with the procedures and moderator typology developed by Sharma, Durand and Gur-Arie (1981) should be conducted.

In the following section, a review of industrial organization research is presented in order to identify and develop a typology of a complete set of potential environmental moderators of the market orientation – business performance relationship.

### **2.2.2 Towards a typology of environmental moderators**

The main focus of strategic management literature is to find answers to why some firms outperform others in terms of superior firm performance; industrial organization literature is concerned with the contribution of industry to firm performance and the effects of industry relative to firm-internal predictors of firm performance (Galbreath and Galvin, 2008; McGahan and Porter, 1997; Powell, 1996; Rumelt, 1991). A large number of environmental factors are evident in the industrial organization literature, such as intensity of competition, competitive power, advertising intensity, customer loyalty, and industry stability (Powell, 1996), industry concentration, industry growth rate, and product differentiation (Robinson and McDougall, 1998), environmental dynamism (Drnevich and Kriauciunas, 2011), industry velocity (Nadkarni and Barr, 2008), competitive power, ease of entry, threat of substitutes, and supplier and buyer power (Galbreath and Galvin, 2008). However, these factors trace back to Porter's (1980) major contribution of the industry analysis framework consisting of competitive rivalry, threat of new entrants, threat of substitutes, and bargaining power relative to both buyers and suppliers, known as Porter's five forces. Porter (1980) describes *competitive rivalry* as competitors jockeying for better positions by employing a number of different tactics such as price competition, advertising, new products, and improved customer service. Thus, this concept seems to correspond greatly with the competitive intensity concept in the market orientation literature.

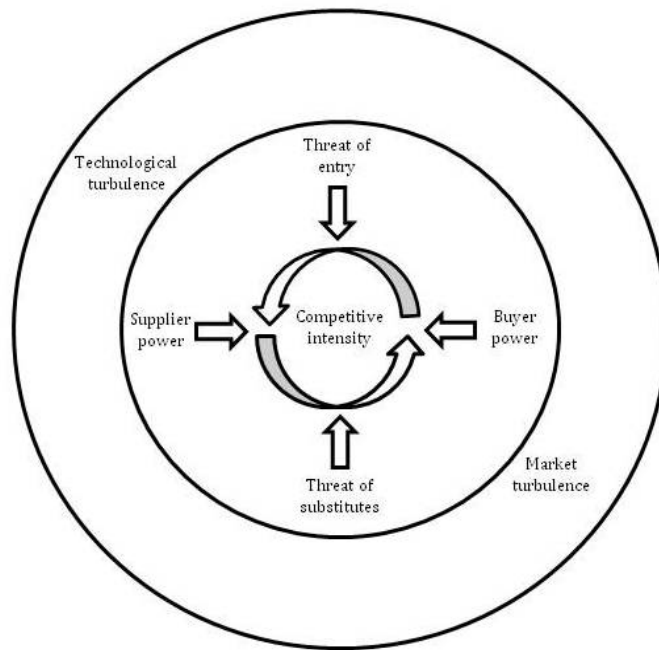
The degree of *threat of new entrants* depends on the presence of entry barriers, such as economies of scale, capital requirements, access to distribution channels, product differentiation and switching costs, and the expected reactions from existing competitors to the new entrant (Porter, 1980). When entry barriers are low, there is a greater threat of new entrants. The threat of new entrants is also greater in industries where concentration is low, meaning that the number of existing competitors is high and no single company is powerful enough to respond aggressively to new entrants. The *threat of substitutes* refers to the extent to which firms in an industry also compete with other industries offering substitute products

and services (Porter, 1980). Substitutes are other products and services aimed at performing the same functions and satisfy the same customer needs as the focal firm or industry (Porter, 1980).

The *power relative to buyers and suppliers* refer to the ability of buyers and suppliers to negotiate greater value on the expense of the focal firm (Porter, 1980). Powerful buyers are able to negotiate lower prices, and several factors increase buyer bargaining power, such as the seller's dependence on few customer firms buying large volumes, low industry concentration, and low degree of differentiation among the competitors (Porter, 1980). The bargaining power relative to a supplier is high when the supplier's industry is highly concentrated and differentiated, and when the focal firm is highly dependent on the products or services of the supplier (Porter, 1980).

Daft, Sormunen and Parks (1988) argue that business environment factors exist in two layers: task environment and general environment. The layer closest to the firm is the task environment which refers to the factors the firm has direct transactions with or that affect a firm's operations and goal attainments. General environment is the outer layer and refers to factors that affect a firm indirectly (Daft et al., 1988). The typology of business environment illustrated by Figure 2.1 is developed by synthesizing the environmental factors evident in the market orientation literature, Porter's (1980) five competitive forces, and the two-layer concept of environment. The five competitive forces conceptualized by Porter (1980) constitute the task environment as these factors have direct impacts on the firm. Market turbulence is considered an element of general environment as this concept refers not only to the current customers of a firm, but to the customers of the industry and their needs. Technological turbulence is also considered a trait of general environment as technology is developed both within and across industries. However, as Daft et al. (1988) argue, factors which for some industries are considered general environment may for other industries represent task environment. Hence, this is a general typology for analyzing business environment that should be adapted to a specific firm or industry.

**FIGURE 2.1**  
**Preliminary typology of environmental factors**



Adopting this typology in market orientation research will contribute to establishing a more complete understanding of which industry conditions are more and less associated with a firm's needs for a market orientation: thus implications regarding the implementation issue of market orientation.

### **2.2.3 Mediators of business performance effects of market orientation**

Kohli and Jaworski (1990) regard relative business performance in terms of firm profitability as the ultimate goal and the motivation for creating, implementing and maintaining a market orientation. This is consistent with the general assumption underlying all marketing and strategic management theory of profit maximization and superior financial performance being the ultimate objective of all firms, since all firms must eventually be profitable to survive (Sandvik and Sandvik, 2003). In their comprehensive framework, Kohli and Jaworski (1990) propose a positive, direct effect of market orientation on business performance, and the majority of market orientation research has adopted this proposition (Kirca et al., 2005).



However, others argue that market orientation is likely to affect business performance through routes of intermediate factors (Han et al., 1998; Kirca et al., Sandvik and Sandvik, 2003; Slater and Narver, 1994b).

The rationale for the proposed direct positive effect of market orientation on profitability evident in the literature reveal an extensive logic and a chain of reactions indicating that profitability may not simply be a direct effect of market orientation. Kohli and Jaworski (1990; 1993; 1996) discuss the four categories of consequences, but do not propose any relations among these consequences although such relations are implied. It is, however, argued that market orientation affects profitability through a means-end chain of market performance (Kotler, 1994). It is argued that although profitability is the ultimate goal of the company, this is not something that can be managed directly (Day, 1990; Sandvik, 1998), and that the amount of performance effect of market orientation depend on the firm achieving other, more immediate effects such as innovation (Han et al., 1998) and customer related consequences (Kirca et al., 2005; Slater and Narver, 1994b). Hence, the consequences of market orientation may be discussed within the efficiency - effectiveness framework of performance (Sandvik, 1998; Sandvik and Sandvik, 2003).

*Efficiency* refers to the generation of profits by “achieving more for less” (Golany and Tamir, 1995) and “doing things right” (Sheth and Sisoda, 2002), creating maximum output using minimum input (Sandvik, 1998). Thus, efficiency is connected to the value added by a company, and profitability is the most commonly used concept referring to a firm’s financial efficiency (Sandvik, 1998). In the categorization of market orientation consequences made by Kohli and Jaworski (1990), the organizational performance measures referred to as cost-based measures are different dimensions of firm profitability and, thus, financial efficiency. Typical examples of financial efficiency measures are gross margin, net profits, return on assets, and return on investment (Sandvik, 1998). Other measures, more concerned with firms’ operational efficiency, are concepts of resource exploitation such as cost efficiency and capacity utilization.

The question of *effectiveness* is concerned with the degree to which a company achieves the desired outputs, thus the degree to which it is “doing the right things” and creating the desired effects (Sheth and Sisoda, 2002). Concepts of effectiveness are concerned with outputs, and not outputs relative to inputs. Revenue-based measures of organizational performance, such as

market share and sales growth, as well as measures tapping into customer responses and innovation outcomes are measures of firm effectiveness (Sandvik, 1998; Sandvik and Sandvik, 2003). These are all effectiveness consequences relevant to market orientation. It is argued that effectiveness is something that can be managed more directly and refers to the various dimensions that are more directly affected by how the members of the organization do their job (Day, 1990; Sandvik, 1998). Hence, the firm's actions are more directly associated with the effectiveness they achieve, and the efficiency of the firm is a subsequent result.

#### **2.2.4 Summary**

In this chapter, different categories of consequences of market orientation have been discussed and how these consequences arise. The general proposition of market orientation affecting business performance, although supported by empirical evidence (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005), may be a simplification of a rather complex relationship. Kohli and Jaworski (1990; 1993) argue that the extent to which a firm needs to be market oriented depends on contingent factors in its business environment. Based on their proposed moderating role of environmental factors, a broader scope of environmental factors is applied for the purpose of this study. Additional environmental factors are identified and included in this study, and a typology of environmental factors is developed.

Further, proposed mediators of the effects of market orientation on business performance were discussed (Han et al., 1998; Kirca et al., 2005; Sandvik and Sandvik, 2003). It is argued that market orientation may not only affect business performance directly, but that the amount of the total business performance outcome of market orientation depends on the amount of effectiveness and operational efficiency consequences.

Both propositions are adopted in this study, providing the foundation for two separate research models: the moderator model and the mediator model. The research models and accompanying hypotheses are presented in Chapter 3.

## **2.3 Market orientation and firm capabilities**

In the previous sections, it is argued that a market orientation contributes to the creation of sustainable competitive advantages, and that market orientation enables firms to allocate resources and realize new product ideas more effectively than competitors. However, it may not be clear whether or not market orientation itself represents those potential sustainable competitive advantages, or whether a market orientation alone is enough to realize such advantages. Drawing on the resource-based view of the firm (Barney, 1991; Drnevich and Kriauciunas, 2011; Newbert, 2007; Wernerfelt, 1984), and more specifically the role of firm capabilities, this section will address the issues of market orientation and the potential sources of competitive advantages within firms.

### **2.3.1 The resource-based theoretical framework and firm capabilities**

The resource-based view of the firm is concerned with the various internal attributes of a firm and considers organizations as bundles of resources (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). It is argued that because no two firms consist of identical sets of resources and capabilities, the unique combination within a company represents the potential for sustainable competitive advantage (Barney, 1991; Wernerfelt, 1984). Resources refer to all tangible and intangible assets, and are typically organized into the following categories: financial, physical, human, and organizational resources (Barney, 1991; 1995). Financial resources include the firm's equity, retained earnings, debt and so forth; physical resources are buildings, facilities and machines; human resources refer to the knowledge, experience, wisdom and judgment of the members of organizations. The fourth category, organizational resources, include both formal dimensions such as reporting structure, management control systems and compensation policies, and informal dimensions such as the organizational history and the relationships, trust and culture among groups and individuals associated with the firm (Barney, 1991; 1995). Any resource could potentially represent a sustainable competitive advantage, and Barney (1991) developed the VRIO framework arguing that a resource must be valuable, rare, and imperfectly imitable, and that the firm must be organized in such a manner that would allow it to exploit the full potential of its resources.

The concept of capabilities was introduced in the resource-based theory as a distinction to the general understanding of resources being something firms have, own or possess, and as “the missing link between resource possession and resource exploitation” (Newbert, 2007:123). Capabilities refer to skills and abilities, and are complex bundles of skills and accumulated knowledge embedded in a firm’s processes, routines and organizational culture (Day, 1994). This differentiation of resources and capabilities being two distinct concepts recognizes the importance of both the possession of resources and the capability to allocate, develop and utilize those resources in order to realize potential competitive advantages. Thus, only when a company both possesses the resources and has the capabilities to exploit those resources, can a potential sustainable competitive advantage be realized (Day, 1994; Newbert, 2007; Teece, Pisano and Shuen, 1997; Winter, 2003). Also, both resources and capabilities can be evaluated using the VRIO-framework developed by Barney (1991), arguing that resources and capabilities can represent a potential sustainable competitive advantage only when they are both valuable, rare and imperfectly imitable, and, further, the organization must be organized in a way that enables the realization of its value.

Previous research has developed different categorizations of firm capabilities and definitions of different types of capabilities based on how they operate on a firm’s resource base and the implications for competitive advantage and business performance (Drnevich and Kriauciunas, 2011). Such categories and definitions include generic capabilities, organizational capabilities, heterogeneous and homogeneous capabilities, and ordinary and dynamic capabilities (Drnevich and Kriauciunas, 2011). The concept of dynamic capabilities has received considerable attention in the literature and has emerged based on the general idea that all firms have the capabilities to make their living in the short term but not all firms have the capabilities to keep up with changing environments in the long term (Newbert, 2007). Dynamic capabilities was conceptualized as a departure from the normal, “zero-level” capabilities all firms have, i.e. ordinary capabilities, and are viewed as higher-order capabilities (Winter, 2003). Teece et al. (1997) define dynamic capabilities as the firm’s abilities to integrate, build and reconfigure internal and external competences to address rapidly changing environments, while Eisenhardt and Martin (2000) see dynamic capabilities as organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die (Eisenhardt and Martin, 2000:1107). Hence, dynamic capabilities involve a firm’s abilities to change and evolve; ordinary capabilities

refer to the abilities of firms to manage their daily operations. It is argued that dynamic capabilities are necessary for firms to stay alive in the long term (Wang and Ahmed, 2007; Winter, 2003). Dynamic capabilities have, further, been associated with market dynamism (Drnevich and Kriauciunas, 2011; Teece et al., 1997; Wang and Ahmed, 2007), innovativeness and the development of products and processes (Drnevich and Kriauciunas, 2011; Winter, 2003), and profitability (Drnevich and Kriauciunas, 2011). The general notion is that dynamic capabilities enable firms to fully exploit their resources and potential sustainable competitive advantages. However, the majority of empirical work regarding dynamic capabilities is qualitative, and quantitative studies are called for (Wang and Ahmed, 2007).

### **2.3.2 Market orientation and the role of ordinary and dynamic capabilities**

Both market orientation and firms' resources and capabilities are argued to enable firms to create and sustain competitive advantages (Hunt and Morgan, 1995). Following these arguments, several scholars have related market orientation to resource-based theory and capabilities. Hunt and Morgan (1995) argue that a successful implementation of market orientation requires skills, but that market orientation is itself not a skill (Hunt and Morgan, 1995: 11). They describe market orientation as intangible, something that cannot be purchased, and a socially complex phenomenon which has components that are highly interconnected. Based on these arguments, Hunt and Morgan (1995) regard market orientation as a higher-order resource, hence something else than simply a skill or a resource.

Day (1994) characterizes market oriented firms as superior in their market-sensing and customer-linking capabilities. Market-sensing capabilities refer to firms' abilities to process information about the market and learn about customers, competitors and channel members (Day, 1994). Customer-linking capabilities refer to firms' abilities to create and manage close customer relationships (Day, 1994). Further, Sandvik (1998) also draw on resource and capability-based theory and argue that this theoretical perspective can contribute to the understanding how and why market orientation contributes to achieving and sustaining competitive advantages. He considers market orientation as learning capabilities and argue that market orientation creates and develops market knowledge.

It is evident that market orientation can be viewed as a firm capability or a higher-order resource. It is, however, also evident that market orientation is essentially concerned with obtaining information and creating knowledge about the market, which represent a resource to the company. This is consistent with Kohli and Jaworski's (1990) concept of market intelligence and behavioral definition of market orientation.

Day (1994) argue that firms need many capabilities to be able to carry out necessary activities to create superior value for customers. Hence, market orientation in terms of the ability to gain market intelligence is one necessary, but not sufficient, capability to achieve and sustain competitive advantages. As ordinary and dynamic capabilities are both concerned with utilizing a firm's resources, these concepts offer interesting additional insights with regard to market orientation and the extent to which firms are capable of aligning, configuring, and reconfiguring their resources in a way that facilitates the realization of potential competitive advantages. Ordinary capabilities enable firms to better handle the day-to-day issues arising in their customer relations by utilizing their market intelligence to make short term improvements. Dynamic capabilities allow firms to develop high quality products and processes based on their market intelligence resources in order to meet the requirements of customers and the competition from other sellers.

Also, market oriented firms are informed regarding the market and the potential for sustainable competitive advantages. Such firms may be more aware of their shortcomings in regard to exploiting potential advantages than their less market oriented competitors. Hence, market oriented firms may also acknowledge the value and importance of both ordinary and dynamic capabilities and make efforts to create and develop such capabilities.

Ordinary and dynamic capabilities have until now been left out from the discussion of how market orientation contributes to business performance, but given the complementary attributes of market orientation and ordinary and dynamic capabilities, their co-existence is likely to be powerful. Including all three concepts in the study does indeed seem appropriate. How these constructs engage in producing business performance outcomes, however, is unclear, as this proposition has not previously been discussed in the literature. Hence, an exploratory approach to the investigation of the interplay between market orientation and ordinary and dynamic capabilities is appropriate. For the purpose of this study, the exploratory approach implies hypothesizing and empirically testing ordinary and dynamic

capabilities both as potential moderators and mediators: hence incorporating ordinary and dynamic capabilities in both research models developed in Chapter 3.

### **2.3.3 Summary**

In this chapter, resource and capability-based theory was brought into the discussion of how to what extent market orientation contributes to business performance. This theoretical perspective offers additional insights regarding how competitive advantages are achieved and sustained, and ordinary and dynamic capabilities refer to a firm's ability to utilize market intelligence obtained through market orientation for market oriented innovation purposes.

To investigate how these concepts engage with a firm's market orientation in producing organizational results, an exploratory approach is undertaken as ordinary and dynamic capabilities are hypothesized to both moderate and mediate performance effects of market orientation.

## 2.5 Summary of theory

Market orientation literature, industrial organization economics and resource-based theory constitutes the theoretical framework for this study. With market orientation literature as a starting point and the basis for this study, elements from both industrial organization economics and resource-based theory are added for the purpose of providing insights regarding how a market orientation results in business performance.

Porter's (1980) five competitive forces are adopted from industrial organization economics literature to expand the analysis of environmental moderators of the market orientation – business performance relationship. Also, a two-layer typology of task and general environment is developed to provide both theory and practice with a practical tool for external analysis.

The concepts of ordinary and dynamic capabilities are adopted from the resource-based theory based on the argument that a market orientation may be necessary but not sufficient for a firm to realize potential sustainable competitive advantages. As the role of ordinary and dynamic capabilities in relation to market orientation is not clear and has not previously been investigated, an exploratory approach is employed to investigate the nature of this potential interplay.

The concepts included in this study are presented in Table 2.5.1, including their definition and their theoretical origin.



**TABLE 2.5.1**  
**Summary of theory**

Concept	Definition	Theoretical origin
Market orientation	Organizationwide generation and dissemination of, and to market intelligence	MO literature
Market turbulence	Rate of change in the composition of customers and their needs	MO literature
Technological turbulence	Rate of change in technology associated with production and distribution of products and services	MO literature
Competitive intensity	The resources, abilities and actions of competitors to differentiate and jockey for positions	MO and IO literature
Entry barriers	Difficulty for new players to enter the market	IO literature
Threat of substitutes	Degree of competition from substitute products and services	IO literature
Buyer power	Buyers' degree of bargaining power to negotiate higher value	IO literature
Supplier power	Suppliers' degree of bargaining power to negotiate higher value	IO literature
Ordinary capabilities	Firms' abilities to use market intelligence in making their living in the short term	RBV literature
Dynamic capabilities	Firms' abilities to use market intelligence in the development and reconfiguration of resources to develop new products and processes	RBV literature
Rate of innovation	Frequency of product, service, production technology, internal processes, and organizational structure developments	MO literature
Customer satisfaction	Level of satisfaction among customers with a firm's products and services, and the firm in general	MO literature
Operational efficiency	Utilization of capacity and resources	MO literature
Profitability	Financial efficiency	MO literature

MO = Market orientation  
IO = Industrial organization  
RBV = Resource-based view

### **3 RESEARCH MODEL AND HYPOTHESES**

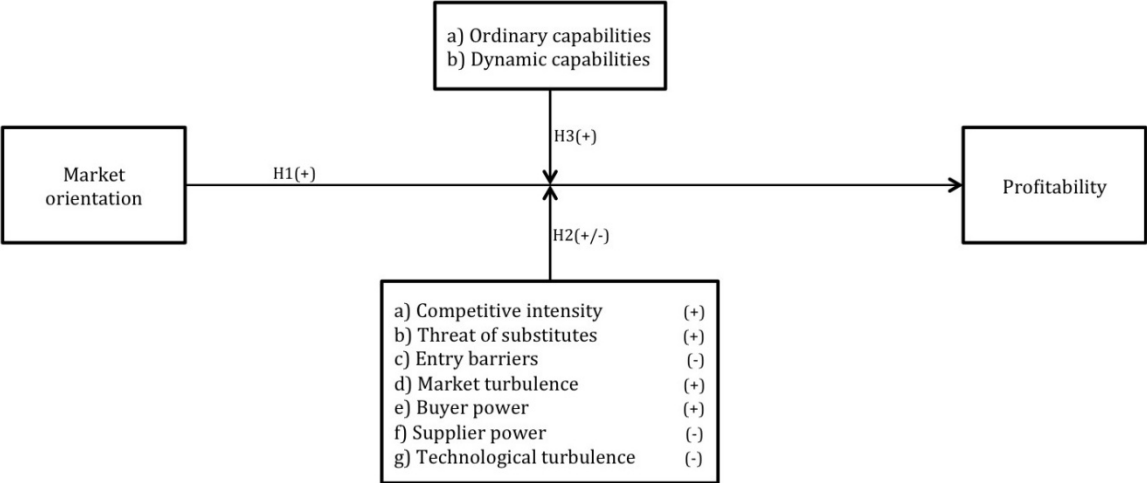
Based on the theoretical framework presented in Chapter 2, two research models and accompanying hypotheses are developed in this chapter. The two models illustrate two different approaches to explicating and investigating the market orientation – business performance relationship, but they are complementary rather than contradictory. Both models provide further insight regarding how market orientation affects business performance, and although they offer alternative explanation, no arguments or findings in the literature suggest that one exclude the other. Ordinary and dynamic capabilities are included in both models as the investigation of how such capabilities engage with market orientation takes an exploratory approach.

The first model, the moderator model, is presented in Chapter 3.1, and the second model, the mediator model, is presented in Chapter 3.2.

### 3.1 Research model I - The moderator model

The first research model addresses the direct effects of market orientation on business performance and the potential moderating effects of the environmental conditions under which firms operate, consistent with Kohli and Jaworski’s (1990; 1993) propositions. In addition, the model is extended in two significant ways. First, the additional environmental factors identified in the Industrial Organization literature are included in the model and are proposed to moderate the business performance outcomes of market orientation. Second, ordinary and dynamic capabilities of firms are included in the model and are hypothesized to influence the contribution of market orientation to business performance in a positive way. The general idea underlying this approach is that the importance of a market orientation may vary depending on environmental conditions, and successful implementation of market orientation is contingent on both environmental conditions and a firm’s capabilities to utilize their market intelligence for innovation purposes.

**FIGURE 3.1**  
**Research model I - The moderator model**



### **3.1.1 Direct effect of market orientation on profitability**

In order to achieve the ultimate goal of superior financial performance, firms must be able to create superior value for customers by offering them products and services whose perceived value exceed the ones of competitors (Narver and Slater, 1990; 1994a; 1994b). The perceived value of a specific market offering is the difference between the benefits customers expect the product or service to provide and the total acquisition and useage costs of that product or service (Zeithaml, 1988). Firms have numerous means of increasing the expected benefits of a market offering and/or reducing the costs in order to create superior value for their customers (Narver and Slater, 1990). The sustainability of superior performance depends on the sustainability of the superior value, and therein the competitive advantage (Narver and Slater, 1990).

A firm's generation and dissemination of, and responsiveness to, market intelligence form an understanding of customers' situation and their current and future needs (Kohli and Jaworski, 1990). In addition, there are exogenous factors that may influence how those needs evolve and change over time, such as the strategic actions of competitors, technological developments and government regulations (Kohli and Jaworski, 1993; Narver and Slater, 1990). These understandings provide firms with knowledge about how they can offer superior value for customers and further enable firms to identify and evaluate alternative sources of sustainable competitive advantage which will create the most sustainable and superior value for customers (Narver and Slater, 1990). Having identified the most effective source of sustainable competitive advantage, all members of an organization are better able to focus their efforts and projects towards the common goal of creating superior value for customers (Kohli and Jaworski, 1990), and effectively allocate the firm's resources in order to achieve that goal (Narver and Slater, 1990). Thus, market oriented firms are better able to create and implement new product and process ideas than their competitors (Kirca et al, 2005), resulting in a continuous creation of superior value for customers by offering products and services which satisfy customer needs better than the products and services of competitors. Market oriented firms that offer their customers superior value products and services are likely to be preferred over products and services of their less market oriented competitors, thus generating increased sales volume and repeat purchase of those preferred market offerings. The result is increased market share. Greater sales volume and greater market share relative to competitors, means greater income and thus greater potential profitability.

The majority of empirical findings reported in the literature provide evidence of the positive profitability outcomes of market orientation (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005). Hence, market orientation is expected to have a positive, direct impact on profitability.

**Hypothesis 1:**

*The greater the market orientation, the greater the profitability*

**3.1.2 Environmental moderators**

As Kohli and Jaworski (1990) argue, the need firms have for being market oriented may depend on the environmental conditions under which they operate. Firms operating in dynamic and unstable competitive environments where conditions are rapidly and continuously changing need to be able to change accordingly and develop and implement new products and processes to survive. And they need to do so better than competitors to achieve sustainable competitive advantages and superior firm performance. Hence, firms in such turbulent industries may not survive in the market place without a market orientation, and the firms that are more market oriented than their competitors should enjoy superior firm performance (Drnevich and Kriauciunas, 2011; Jaworski and Kohli, 1993; Kohli and Jaworski, 1990). As argued in Sections 2.2.1 and 2.2.2, a full set of environmental factors is required for a complete understanding of the conditions under which firms operate. All environmental factors identified and included in the typology developed in Section 2.2.2 are hypothesized to moderate the market orientation – profitability relationship.

Three competitor-related factors are identified. First, *competitive intensity* is defined as the resources, abilities and actions of competitors (Kohli and Jaworski, 1993), and refers to the rivalry between existing competitors in an industry (Porter, 1980). The competition is strong when competitors attack each other and jockey for better positions using a number of different strategic tools (Porter, 1980; Slater and Narver, 1994). In industries with low degrees of competitive intensity, customers are “stuck” with the products and services of one or a few companies, and firms may perform well regardless of whether they are market oriented or not (Kohli and Jaworski, 1993). In industries with high competitive intensity, customers have multiple choices and firms must respond to the needs and preferences of the customers in order to offer the preferred alternative (Kohli and Jaworski, 1993). Organizations with low

market orientation are likely to lose customers to their more market oriented competitors, and ultimately perform poorly. Thus, under competitive intense conditions, one would expect greater performance effects of being market oriented. Empirical findings evident in the literature provide mixed support for the moderating effect of competitive intensity, and Kirca et al. (2005) report that five of 17 studies provide supportive findings of this effect, leaving 12 studies reporting no significant results. However, several studies reporting nonsignificant results have been criticized for methodological shortcomings and the results should be treated with caution (Gray et al., 1999). Hence, competitive intensity is expected to positively moderate the market orientation – profitability relationship.

**Hypothesis 2a:**

*The greater the competitive intensity, the greater the contribution of market orientation to profitability*

Second, *threat of substitutes* is a different competitor-related factor and refers to the degree to which an industry is exposed to competition from industries offering substitute products and services. Substitute products and services perform similar functions or satisfy the same customer needs as the products and services offered within an industry (Galbreath and Galvin, 2008; Porter, 1980). Competition from substitutes may in fact have characteristics similar to competition from within the industry, and substitute firms and industries may compete using similar strategic means. Like competitive intensity, competition from substitutes is hypothesized to strengthen the market orientation – profitability relationship because firms that are more market oriented than competitors offering substitute products and services are expected to be able to create greater value for customers, and achieve greater relative performance. Firms operating in industries that are not threatened by substitute industries are exposed to less dynamic environment, and are less dependent on a market orientation. Only studies testing the direct effects of the threat of substitutes on business performance were identified during the literature review for this study (e.g. Galbreath and Galvin, 2008; Narver and Slater, 1990; Powell, 1996), and it appears that no study has investigated the moderating effect of the threat of substitutes.

**Hypothesis 2b:**

*The greater the threat of substitutes, the greater the contribution of market orientation to profitability*

Third, the threat of new entrants refers to the degree to which an industry is exposed to new players entering the industry. *Entry barriers* are factors which make it difficult for new firms to enter an industry. These include economic and other resource advantages of existing firms, and also the abilities of existing firms to attack new entrants (Galbreath and Galvin, 2008; Porter, 1980). In industries with few and low degrees of entry barriers, the threat of new entrants is high. When new competitors are able to enter an industry without any difficulties or disadvantages, firms in that industry operate under uncertainty regarding when a new competitor appears, and the need for a market orientation may arise. Contrarily, when entry barriers are high, new competitors will have a hard time entering the industry, and existing firms are protected from outside competition. In such industries, the threat of new entries is low and the need for a market orientation may be minimal. In fact, a market orientation may be a misuse of resources and could produce less profit. Hence, great entry barriers are hypothesized to contribute to reduced profitability outcomes of market orientation. When reviewing the literature for the purpose of this study, only one study hypothesizing and testing this potential moderating effect was identified. However, Gray et al. (1999) find no empirical support for their hypotheses of entry barriers as moderator.

**Hypothesis 2c:**

*The greater the entry barriers, the lower the contribution of market orientation to profitability*

Two factors included in the typology developed in Section 2.2.2 are customer-related. First, *market turbulence* refers to the rate of change in the composition of customers and their needs and preferences (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Slater and Narver, 1994). High levels of market turbulence require firms to be able to alter their market offerings to meet the customers' changing needs in order to survive in the market place (Drnevich and Kriauciunas, 2011; Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Slater and Narver, 1994). Thus, firms need to be market oriented in order to understand how the changing

environment will affect customer needs, and how to satisfy those needs when market turbulence is high, and being more market oriented than competitors will contribute to greater relative performance. When market turbulence is low and customer needs are stable and do not change much over time and, additionally, customers are likely to be loyal to the sellers they have done business with in the past, it seems clear that firms are likely to perform well regardless of whether they are market oriented or not (Jaworski and Kohli, 1993; Slater and Narver, 1994). Kirca et al. (2005) report that five of the 14 studies testing the moderating effect of market turbulence included in their meta-analysis document supportive results; their conclusion is that market turbulence is likely to moderate the market orientation – business performance relationship. Thus, the following hypothesis is developed:

**Hypothesis 2d:**

*The greater the market turbulence, the greater the contribution of market orientation to profitability*

Second, *buyer power* refers to the bargaining power relative to customers, and, thus their ability to negotiate greater value in terms of lower prices or greater volume (Porter, 1980; Slater and Narver, 1994a). Buyers are often powerful when the industry caters to a small number of large customers, the industry is comprised of many small sellers, or when the buyers are not dependent on the offerings of one single supplier (Porter, 1980). When sellers are dependent on a few, large customers they are dependent on keeping the business of these customers, therefore they may need to offer the highest quality for the lowest price to survive in the market place. Slater and Narver (1994a) hypothesize and test whether the degree of buyer power affect a firm's relative emphasis on customers or competitors, but their findings provide limited support for their hypotheses. Gray et al. (1999) hypothesize a positive moderating effect of buyer power on the effect of market orientation on business performance, but their findings only provide partial support for the opposite effect. It is, however, argued that when faced with powerful buyers, market oriented companies will understand the demands of these customers as well as what competitors may offer them. This knowledge enables firms to satisfy the demands of their powerful customers and differentiate themselves from the competition, both by creating superior value for customers. The creation of superior value for customers generates income and potentially above-normal profitability.



Hence, a market orientation is hypothesized to generate greater profitability at the mercy of powerful buyers.

**Hypothesis 2e:**

*The greater the buyer power, the greater the contribution of market orientation to profitability*

The final two environmental factors identified and included in the typology developed in Section 2.2.2 refer to two aspects of industry environment: suppliers and technology.

*Supplier power* refers to the bargaining power of the industries and firms on the supply-side of the chain of value, and the extent to which supplying firms are able to negotiate greater value in terms of higher prices for their products and services (Galbreath and Galvin, 2008; Porter, 1980; Powell, 1996). When dependent on powerful suppliers due to high concentration in the supplier industry or dependency on the products and services of the suppliers, a market orientation may not be of any value to the firm. Firms may need to focus their attention towards the suppliers and their relationship, and a market orientation may be less appropriate as it may cause firms to misplace their strategic focus and base decisions on less relevant information. Hence, firms at the mercy of powerful suppliers are expected to see lower profitability-effects of a market orientation. No study investigating the potential moderating effect of supplier power on performance outcomes of market orientation were identified in the literature review for this study.

**Hypothesis 2f:**

*The greater the supplier power, the lower the contribution of market orientation to profitability*

Finally, *technological turbulence* refers to the rate of change in production technology, service technology and the technology applied in delivering products and services to the customers (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990). In markets that can be characterized as technologically stable, meaning that the technology of producing products and services and delivering these to customers is well developed and not continuously

changing, technology is a point of parity between competitors. On the other hand, in markets where technology is rapidly changing, being the first competitor with the newest technology may represent a major competitive advantage. In industries characterized by technological turbulence keeping up with technological developments is crucial and one would expect firms in such industries to place a relative emphasis on the technological change (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990). Hence, firms operating in such industries that focus their attention on customers and their needs are likely to experience lower effects of market orientation on profitability.

Kirca et al. (2005) include 11 studies investigating the moderating effect of technological turbulence, and report that only one produces supportive results. However, 11 studies are not sufficient to conclude that the hypothesized effect does not exist, and some studies reporting nonsupportive findings can be criticized from a methodological point of view. For example, Slater and Narver (1994a) conduct their investigations within the sample frame of two organizations, an empirical setting where the variation in the environmental factors is likely to be low. Jaworski and Kohli (1993) only perform split-group analyses, which are appropriate for identifying homologizer effects (Sharma et al., 1981). Hence, there is a need for further investigation of this potential effect.

### **Hypothesis 2g:**

*The greater the technological turbulence, the lower the contribution of market orientation to profitability*

### **3.1.3 The moderating role of ordinary and dynamic capabilities**

As discussed in Section 2.3, ordinary and dynamic capabilities refer to firms' abilities and skills to build, allocate and structure their resources in order to exploit potentials for sustainable competitive advantages. Firms use their ordinary capabilities to make their living in the short term, thus ordinary capabilities refer to the abilities of firms to comply with the feedback and needs of customers ad hoc in their daily operations by improving existing products, processes and resources in a manner that provides increased value for customers (Drnevich and Kriauciunas, 2011). Dynamic capabilities refer to a firm's abilities to respond to signals of opportunities and threats in the market by developing new resources and resource combinations, developing new products and services, and creating new processes. Such

capabilities also help companies respond more quickly and efficiently to changes in their environment, and can reveal and make available new alternative strategic choices and directions (Drnevich and Kriauciunas, 2011).

It is argued that the development and use of ordinary and dynamic capabilities are associated with the continuous improvement and development of products and services and exploitation of a firm's resource base. As market orientation provides firms with knowledge and understanding of current and future needs of customers and exogenous factors that may influence the development of these needs (Kohli and Jaworski, 1990; Narver and Slater, 1990), market orientated firms that also have high levels of ordinary and dynamic capabilities are able to develop high-quality market offerings to satisfy the needs of their customers, as well as to create superior value for customers, in the end, achieving sustainable competitive advantage and superior financial performance. Hence, firms are expected to enjoy greater profitability outcomes of market orientation when combined with the extensive use of both ordinary and dynamic capabilities.

**Hypothesis 3a:**

*The greater the use of ordinary capabilities, the higher the contribution of market orientation to profitability*

**Hypothesis 3b:**

*The greater the use of dynamic capabilities, the higher the contribution of market orientation to profitability*

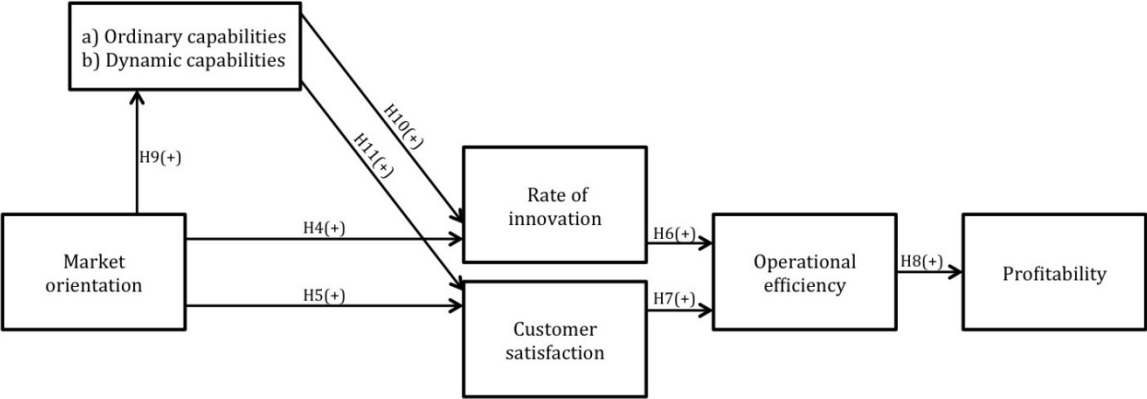
**3.1.4 Summary**

To sum up, research model I employs the moderators approach to explain how and to what extent market orientation contributes to financial performance. A total number of seven environmental factors, partially derived from the market orientation literature and partially from the Industrial Organization literature, are hypothesized to moderate the profitability outcomes of market orientation. In addition, an exploratory approach is undertaken to investigate the role of ordinary and dynamic capabilities, and both are hypothesized to have positive effects on the market orientation – profitability relationship.

### 3.2 Research model II – The mediator model

The development of the second model is based on the arguments evident in the literature which indicate that it may be difficult to identify the direct effect of market orientation on business performance because market orientation primarily influences business performance indirectly through different routes of intermediate factors (Han et al., 1998; Kirca et al., 2005; Sandvik and Sandvik, 2003). Consistent with these arguments, market orientation is hypothesized here to have a direct impact on rate of innovation and customer satisfaction, which in turn are hypothesized to influence operational efficiency and, subsequently profitability. Hypothesizing this causal chain of events is also consistent with the rationale underlying the expected positive business performance outcomes of market orientation (Narver and Slater, 1990; 1994b). In addition to the hypothesized causal path of effectiveness and efficiency consequences of market orientation, ordinary and dynamic capabilities are hypothesized as additional intermediate factors in this chain of effects. As market orientation enables firms to anticipate customer needs, this may also contribute to firms developing ordinary and dynamic capabilities, and such capabilities may affect profitability through similar causal chains of effectiveness and efficiency as market orientation.

**FIGURE 3.2**  
**Research model II – The mediator model**



### **3.2.1 Effectiveness and efficiency mediators**

As discussed in Section 2.2.3, several contributions point to potential intermediate factors which channel effects of market orientation through mediator routes to business performance: market orientation is expected to affect profitability through effectiveness consequences: concepts of performance that are more directly manageable and affected by the actions of individuals and departments within the organization. Market oriented firms are able to understand the situation of the customers and anticipate customer needs (Kohli and Jaworski, 1990; Narver and Slater, 1990). This knowledge and understanding provide the basis for continuous work to improve products, services and processes, and for the development of new products, services and processes, both in order to meet customer preferences and create high-quality market offerings preferred by customers. Han et al. (1998) argue that innovation may be the missing link in the market orientation – performance relationship, and find that market orientation makes a strong contribution to a firm’s innovation, which in turn affects business performance. Sandvik and Sandvik (2003) and Kirca et al. (2005) report similar findings. Kirca et al. (2005) also find quality and customer loyalty to mediate effects on business performance, consistent with the arguments of Slater and Narver (1994b). Hence, for the purpose of this study, market orientation is expected to contribute to both rate of innovation and customer satisfaction.

#### **Hypothesis 4:**

*The greater the market orientation, the greater the rate of innovation*

#### **Hypothesis 5:**

*The greater the market orientation, the greater the customer satisfaction*

Rate of innovation refers both to the frequency of the development of new products and services and to the improvement and development of new processes and systems for producing and delivering these products, as well as enhanced relations to customers, competitors and suppliers. When rate of innovation is high, firms not only offer products and services that satisfy customer needs, but are also able to develop new and improved internal processes and systems, and better customer, competitor and supplier relations. Firms with high degrees of innovation are likely to exploit their resources effectively and utilize their

capacity. Hence, a firm's innovation is hypothesized to affect their operational efficiency in terms of better capacity utilization and cost efficiency.

**Hypothesis 6:**

*The greater the innovation, the greater the operational efficiency*

Further, it is argued that high-quality products and services produce satisfied customers who are loyal to the firm and communicate satisfaction to their friends and associates (Kohli and Jaworski, 1990; Slater and Narver, 1994b). Likely effects are both repeated business from existing customers and business from new customers. Hence, sales volume is likely to increase even without any promotion efforts from the firm indicating a reduction of promotion costs and, thus, better operational efficiency in terms of cost efficiency.

**Hypothesis 7:**

*The greater the customer satisfaction, the greater the operational efficiency*

Firms reporting greater operational efficiency in terms of better capacity utilization and cost efficiency relative to competitors exploit their resources better than the competition, and are able to "achieve more for less". Hence, operational efficiency contributes to reduced costs and profitability in terms of operation margin and profit margin.

**Hypothesis 8:**

*The greater the operational efficiency, the greater the profitability*

### **3.2.2 The mediating role of ordinary and dynamic capabilities**

Narver and Slater (1990) argue that market-oriented businesses know that they need to build long-lasting and mutually beneficial customer relationships to maintain superior performance. A market orientation also contributes to a continuous and proactive disposition toward meeting customer needs (Kirca et al, 2005), and market-oriented firms are continually searching to identify and develop new competitive advantage (Narver and Slater, 1990). As argued in section 2.2.3, market oriented firms are expected to build and develop ordinary and

dynamic capabilities that will enable them to execute high-quality responsiveness to market intelligence in order to exploit the identified potentials for sustainable competitive advantages and superior financial performance. Hence, market orientation is expected to contribute to the development and use of both ordinary and dynamic capabilities.

**Hypothesis 8a:**

*The greater the market orientation, the greater the use of ordinary capabilities*

**Hypothesis 8b:**

*The greater the market orientation, the greater the use of dynamic capabilities*

Both ordinary and dynamic capabilities are expected to affect rate of innovation and customer satisfaction as both categories of capabilities are associated with the improvement and development of products and services and the satisfaction of customer needs. Based on these arguments, the following hypotheses are developed:

**Hypothesis 9a:**

*The greater the use of ordinary capabilities, the greater the rate of innovation*

**Hypothesis 9b:**

*The greater the use of dynamic capabilities, the greater the rate of innovation*

**Hypothesis 10a:**

*The greater the use of ordinary capabilities, the greater the customer satisfaction*

**Hypothesis 10b:**

*The greater the use of dynamic capabilities, the greater the customer satisfaction*

### **3.2.3 Summary**

Research model II hypothesizes a total of four routes through which market orientation is expected to affect profitability. Rate of innovation, customer satisfaction and operational efficiency are hypothesized here to mediate the profitability effect of market orientation are all included in the model for their argued relation to market orientation. Ordinary and

dynamic capabilities are argued here to engage with market orientation in producing performance, but as their role in relation to market orientation is unknown, these concepts are hypothesized both as moderators in research model I and as potential mediators in research model II.



## **4 RESEARCH METHODS**

This chapter provides a description of the research methods employed to empirically test the hypothesized models. First, considerations regarding the choice of a research design and the selected design are discussed in Chapter 4.1. Next, in Chapter 4.2, considerations regarding the empirical setting are discussed and the chosen empirical setting is described. The sample frame, sampling procedures and size are discussed in Chapter 4.3, and measurement issues are discussed, and the measurement model is developed, in Chapter 4.4. Finally, Chapter 4.5 provides a description of the data collection procedures.

## 4.1 Research design

The research design describes how the research is conducted, and the choice of research design is primarily guided by the purpose of the study and the research model (Mitchell and Jolley, 2010). The purpose of this study is to test the hypothesized causal relationship between multiple independent and dependent variables, thus a causal design is appropriate. Causal research design includes experimental design, panel design, and correlation design (Sandvik, 1998). In all causal designs the necessary conditions for causality: isolation, covariation and directionality, must be satisfied (Bollen, 1989). Isolation secures the absence of spurious and masked associations between the variables in the research model by isolating them from all other potential variables that may be associated with them (Bollen, 1989). Covariation refers to the degree to which the variations in an independent and a dependent variable are related, and directionality concerns whether the cause is observed prior to the occurrence of the effect (Bollen, 1989).

Experimental design involves exposing different groups of participants to a specific manipulated treatment representing one or more independent variables to study the effects of that treatment on one or more dependent variables (Mitchell and Jolley, 2010). The independent variables included in this study are not easily manipulated because more than two values can be assigned to each variable, and the number of independent variables would either way involve an unmanageable large number of treatments. In addition, treatment manipulation is difficult when organizations, and not individuals, are the units of analysis.

Research using a panel design monitors cases over a certain period of time, including a minimum of two separate observations (Churchill & Iacobucci, 2005). This design is, however, time consuming and potentially costly, and one would have no way of knowing the appropriate time between the two observations to actually be able to demonstrate the cause and effect.

The remaining research design is correlation design, also called survey design (Mitchell and Jolley, 2010), which includes collecting all the data at the same time and using multiple regression analysis for hypotheses testing (Meyers, Gamst and Guarino, 2006). Despite the fact that the two other designs would be preferred in terms of meeting the causality criteria, this is the most appropriate design for this study because due to feasibility with regard to both

the aspects of time and resources and the issues regarding the other two design alternatives. Efforts are, however, necessary to meet the causality criteria.

The isolation criterion is satisfied in correlation studies by two means. First, including control variables to account for the association between these variables and the variables included in the research model will contribute to secure the absence of spurious and masked effects (Mitchell, 1985). The control variables included in this study are presented in Section 4.4.5. Second, the survey should be conducted in a homogenous setting, such as within one industry, and key informants should be randomly selected from the population (Mitchell, 1985). The empirical setting and sampling procedures are discussed in Chapters 4.2 and 4.3.

To satisfy the covariation criterion natural variance in the independent variables is required. It is argued that a firm's internal factors such as market orientation and capabilities are heterogeneously distributed across firms within an industry (Sandvik, 1998). As the empirical setting and sample frame include firms from all over Norway, the firm's external factors are also likely to have natural variances.

The directionality criterion is not fully satisfied in this study. This is, however, the least important criterion due to the irrelevance of discussing the cause and effect if the two prior criteria were not fulfilled, and further, it is adequately satisfied in this study by the theoretical arguments and hypotheses rationale.

To sum up, a correlation design is applied in this study, and efforts are made to meet the causality conditions (Bollen, 1989). The design enables the demonstration of the associations among the variables, and the causal relationships are substantiated through theory and rationale.

## 4.2 Empirical setting

When selecting the empirical setting for a theory testing study such as this one, internal validity and statistical conclusion validity should be prioritized over external validity (Mitchell and Jolley, 2010). Statistical conclusion validity is concerned with the degree to which the results justify a conclusion of the association of two variables. Internal validity refers to the extent to which a demonstrated causal relationship between variables is valid within the setting and whether a conclusion can be made regarding that relationship. A homogeneous setting such as an industry is preferable and defining and describing the setting and its boundaries strengthens the validity and reliability of the study (Mitchell and Jolley, 2010).

The setting should also be selected based on its relevance for the variables included in the study and the hypothesized relations among them. The main focus of this study is the effect of market orientation on profitability and potential moderators and mediators of that effect. As argued in Section 2.2.1, a setting where the competitive conditions are heterogeneous and likely to vary across the industry is preferable in order to test the hypothesized environmental moderators.

The empirical setting selected for this study is the Norwegian information and communication technology (ICT) industry. This is the third largest industry in Norway in terms of revenue and consists of nearly 6 000 enterprises and 55 000 employees, according to the association of the Norwegian ICT industry, ICT Norway. The ICT industry is competence intensive and functions as a premise provider of resources to both private and public sector in terms of both technology and competence representing major sources of competitive advantages, enabling innovation, and effectiveness and efficiency improvements.

The ICT industry includes development and sale of hardware and software, telecommunication, and services and consultancy, and the majority of the firms in this industry combine several categories of operations. Approximately 70% of the companies are registered with 0-1 employee, but at the same time 20% of the companies in this industry account for 80% of the total amount of revenue, according to ICT Norway.

The selection of the ICT industry ensures satisfactory homogeneity as a number of industry-specific factors such as product categories, competence intensity, and regulatory aspects are

likely to be quite homogeneous across the industry. However, the ICT industry also satisfies the requirement for heterogenic competitive conditions. In this industry, a large number of sub markets and niches exist, some which can be characterized by rapidly changing technology, great market turbulence, high degrees of competition or under the power of suppliers, and others where technology is mature, competition is stable or market turbulence is low. Within the different sub markets in the ICT industry a variety of combinations of these factors are likely to exist, and the heterogeneity of these conditions across the industry provides the potential for observing variation in the different environmental factors hypothesized to moderate the market orientation – performance relationship.

### 4.3 Sample frame, procedures and size

The population is given by the setting (Mitchell and Jolley, 2010) and the population in this case includes all firms the Norwegian ICT industry, a total of approximately 6 000 registered firms (ICT Norway). All 6 000 firms are, however, not actively operating therefore it is clearly inappropriate to include sleeping and inactive firms in this study as these firms are not likely to have a market orientation.

The sampling frame is usually a list of companies in the population that meets a set of criteria which narrows the number in, and which further defines the basis for making a selection (Mitchell and Jolley, 2010). The purpose of the sample frame is to further isolate from potential effects of third variables and improve the statistical power of the study. In this study, the sample frame should include all active firms within the ICT industry, and the following criteria define the sample frame:

- Industry code – the following codes were included:
  - 26100 – Production of electronic components and circuit boards
  - 26200 – Production of computers and accessories
  - 26300 – Production of communication equipment
  - 58200 – Publishing of software
  - 61000 – Telecommunication
  - 62000 – Services associated with information technology
  - 63100 – Data processing, storage, and associated services, web operations
  - 95100 – Computer and communication equipment repairs
- Registered no later than 1 January 2010
- Reported sales revenue 2010 of minimum NOK 100 000
- Registered e-mail address

All industry codes relevant for the ICT industry were included. The register date limit and minimum criteria of reported revenue 2010 were included in the criteria to exclude all inactive firms and firms that are recently registered and may not be in a position to have a qualified assessment of the environmental conditions or the market orientation and performance of the firm.

Based on these criteria 2 286 (1 982) Norwegian ICT companies are included in the sample frame, and the complete list of all firms within the sample frame was retrieved from the enterprise database Ravninfo ([www.ravninfo.com](http://www.ravninfo.com)). It is unrealistic to survey all the firms in the sample frame, therefore a sample must be drawn from the complete list. To do that, both the desired sample size and the chosen sampling strategy must be specified.

The sample size affects the statistical power of our analyses, which means that the larger the sample size the greater the probability of correctly rejecting a false null hypothesis because large sample sizes are associated with narrower confidence intervals (Meyerset al., 2006). Several recommendations regarding sample size are evident in the literature. Generally, sample sizes  $> 200$  are considered large, and sample sizes  $< 100$  may not produce significant results (Meyers et al., 2006). A simple formula to estimate the appropriate sample size was developed by Tabachnick and Fidell (2007), which states that the number of cases in the sample,  $N$ , should be at least  $50 + 8m$ , where  $m$  is the number of variables included in the hypothesized model. In this study the number of variables is 13. Hence, the sample size should be  $> 154$ .

Further, the sample should be representative for the population (Mitchell and Jolley, 2010), a requirement that affects the choice of sampling strategy. Random sampling would be the preferred strategy, as this would ensure the generalizability of statistically significant results because every firm within the sample frame has the same probability of being included in the sample, and every possible combination of cases in a sample is equally likely (Mitchell and Jolley, 2010). However, a non-random sampling procedure based on self-selection is applied in this study as invitations are distributed to all firms within the sample frame and each recipient is free to accept or decline. This strategy was chosen despite the risk of the sample not being completely representative for the population, because of the minimal time required. Also, in most studies some degree of self-selection is inevitable because it is unlikely to elicit all recipients to respond to the inquiry and complete the survey.

In studies such as this one, where the units of analysis are organizations and the subjective measures are applied to document variance in the variables, the use of key informants is common. A key informant is an individual responding to a survey on behalf of his or her organization and should be in a position and/or have the competence that enables him or her to give a qualified assessment of the phenomena in question, and a low tendency to let his or

her own feelings and opinions influence their responses (Bagozzi, Yi and Phillips, 1991; John and Reve, 1982). Campbell (1955) argues that key informants should be selected based on two criteria: (1) Their role in the company, meaning that the key informants should have a role that entails knowledge of the phenomena being studied, and (2) ability and willingness to communicate with the researcher. Generally, a multiple of key informants from each firm is recommended (van Bruggen, Lilien and Kracker, 2002; Sandvik and Grønhaug, 2007), but the specification of the appropriate number of key informants should be based on both the research question(s) and the chosen methods and setting. In this study it is considered sufficient and appropriate with one key informant from each of the responding firms for several reasons. First, few members of an organization will have the knowledge and competence to assess the studied phenomena on behalf of their organization, and as the majority of firms in the ICT industry are relatively small the managers are likely to be involved in all activities and decisions in the companies. Second, since survey response may be considered by many to be a waste of valuable time it may be sufficiently challenging to recruit one key informant from each company. Thus, single key informants were used in this study and the survey inquiry was directed to the managers of these firms.



## 4.4 Measurement

The ability to observe and measure the constructs in the research model is an assumption of all quantitative research, but the constructs in this study are rarely directly observable. In order to investigate the hypothesized relations among different phenomena measures have been developed, i.e. measureable variables, to represent the theoretical constructs, i.e. the latent variables, and the objective is to develop measures that will link the observed variables and the theoretical construct in a valid manner. The development of good measures and measurement models is the first step to achieve satisfactory validity in a study's measures, and Bollen (1989) has developed the following four steps of measurement development:

1. Define the concepts' meaning or explanation
2. Identify of the concepts' dimensions and define the corresponding latent variables
3. Form measures
4. Specify the relationship between the measures and the latent variables

The first two steps were addressed in Chapter 2 as definitions of all the constructs included in this study was provided and the dimensions of the constructs were discussed. The last two steps are addressed in this chapter. First, the development of measures is in accordance with the recommendations of Churchill (1979) to adopt measures that have been applied and validated in other studies, and to adapt those measures to the empirical setting. The measures were translated to Norwegian and adapted to the ICT Industry setting through an iterative process including discussions with industry representatives and think-loud protocols. The complete set of Norwegian measures is included in Appendix A.

Second, the relations between the measures and the theoretical constructs are specified in terms of directionality. The measures may both be drivers and effects of the latent variables (Bollen and Lennox, 1991) and the measurement models will be defined as either formative: the measured variables cause the latent variable, or reflective: the measured variables are outcomes of the theoretical construct.

#### 4.4.1 Market orientation

Market orientation is defined as the organizationwide generation of market intelligence, internal dissemination of that intelligence, and responsiveness to it (Kohli & Jaworski, 1990). As discussed in Chapter 2.1 the MARKOR scale is developed based on this definition of the market orientation construct including 20 items designed to represent the three dimensions of market orientation (Kohli, Jaworski and Kumar, 1993), and the scale is widely applied in the market orientation literature (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005).

Market orientation is a higher-order construct as it is comprised of three distinct dimensions and each dimension is represented by its own set of measures. The relationships between the items and the construct are formative as each item causes some variance in the dimension it represents, and each dimension causes variance in the market orientation construct. Illustrated with an example, the more in-house market research executed by a firm, the more intelligence is generated and, thusly, the more market oriented the firm is, regardless of the scores of other items. Hence, each item and each dimension provides a unique contribution to the construct, and the degree of correlation among the items is irrelevant.

The first dimension of market orientation is intelligence generation, and the items are applied in this study are displayed in Table 4.4.1.

**TABLE 4.4.1**  
**Market orientation – generation measurement**

---

1	<i>We meet with customers at least once a year to find out what products or services they will need in the future.</i>
2	<i>We do a lot of in-house market research.</i>
3	<i>We are very quick to detect changes in our customers' product and service preferences.</i>
4	<i>We poll end users at least once a year to assess the quality of our products and services.</i>
5	<i>We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation).</i>
6	<i>We periodically review the likely effects of changes in different parts of our business environment on customers.</i>

---

Please see Table 4.4.2 for the measurement scale applied for the intelligence dissemination dimension of market orientation.

**TABLE 4.4.2**  
**Market orientation – dissemination measurement**

- 
- 1 *We have interdepartmental meetings at least once a quarter to discuss market trends and developments.*
  - 2 *Marketing personnel in our business unit spend time discussing customers' future needs with other functional departments.*
  - 3 *When something important happens to a major customer or market, the whole business unit knows about it in a short period.*
  - 4 *Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.*
  - 5 *When one department finds out something important about competitors, it is slow to alert other departments.*
- 

The third dimension of market orientation is responsiveness to generated and disseminated market intelligence, and MARKOR provide nine items. Please see Table 4.4.3.

**TABLE 4.4.3**  
**Market orientation – responsiveness measurement**

- 
- 1 *We are quick to decide how to respond to our competitors' price changes.*
  - 2 *For one reason or another we tend to ignore changes in our customers' product or service needs.*
  - 3 *We periodically review our product development efforts to ensure that they are in line with what customers want.*
  - 4 *Several departments get together periodically to plan a response to changes taking place in our business environment.*
  - 5 *If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.*
  - 6 *The marketing activities of the different departments in this business unit are well coordinated.*
  - 7 *We have no formal routines for handling customer complaints.*
  - 8 *Our marketing plans are developed and implemented in a timely fashion.*
  - 9 *When we find that customers would like us to modify a product or service, the departments involved takes concerted actions to do so.*
- 

All market orientation items were measured using a five-point Likert scale where 1 = Totally disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, and 5 = Totally agree.

The items were adopted to the setting and to the structure of the survey, and some minor changes were made in order to keep the sentences short and simple. Also, seven items were reverse in the original scale, but after the think-loud protocols it became clear that the industry representatives found some of these items odd and three of the items were changed to a positive form. Reverse scales are supposed to serve as a control of whether key informants actually read and interpret the item questions before answering, but they often have a negative form and are more challenging for key informants to consider on Likert-scales when the maximum score is labeled “To a very large extent”. Therefore reverse scales are generally not recommended (Ferrel and Wilcox, 1991). However, four of the reverse items from the original MARKOR scale were applied in this study because the think-loud protocol did not reveal any issues regarding these four items.

The market orientation measurement scale includes measures of both formal and informal activities, and measures pertaining to both customers and competitors, and other exogenous factors that could influence customer needs. It is, however, evident from the scale items, and especially the responsiveness measures, that market orientation to a great extent refers to routines and systems focusing on ongoing business. This observation is also consistent with Han et al.’s (1998) statement of innovation being the missing link to achieving profitability effects of market orientation, and although innovation and product development are topics discussed in the conceptualization of market orientation, the scale items, and the responsiveness measures in particular, lack this element. Hence, as discussed in Chapter 2.3, including innovation-related concepts (i.e. ordinary and dynamic capabilities, and innovation) in the hypothesized model could in fact identify a missing link.

#### **4.4.2 Environmental factors**

Seven environmental factors are included in this study. Jaworski and Kohli’s (1993) measurement scales are applied for the factors included in their comprehensive framework: competitive intensity, market turbulence, and technological turbulence. These are all considered reflective as the items are effects of the latent variables, meaning that the variance in the items is considered a result of variance in the theoretical constructs.

The remaining four constructs, entry barriers, threat of substitutes, and buyer and supplier power are all measured with single-item scales adopted from Galbreath and Galvin (2008).

These items were all rephrased from questions to statements in the survey development in order to present all items regarding environmental factors on a single page.

All measures of the environmental constructs were measured by the five-point Likert scale where 1 = Totally agree and 5 = Totally disagree.

#### **4.4.2.1 Competitive intensity**

Competitive intensity is defined as the degree of competition and the competitors' resources, abilities and actions to differentiate (Kohli & Jaworski, 1990). This construct is also evident in the industrial organization literature (i.e. Galbreath and Galvin, 2008; Porter, 1980; Powell, 1996), but the measures applied in this study are adopted from Jaworski and Kohli (1993).

The measurement scale comprises of six items that represent the definition of the concept as they are concerned with different strategic dimensions competitors use to attack each other (i.e. promotion and price) in addition to more general items concerned with how firms perceive the competitive situation.

**TABLE 4.4.4**  
**Competitive intensity measurement**

- 
- 1 *Competition in our industry is cutthroat.*
  - 2 *There are many "promotion wars" in our industry.*
  - 3 *Anything that one competitor can offer others can match readily.*
  - 4 *Price competition is a hallmark of our industry.*
  - 5 *One hears of a new competitive move almost every day.*
  - 6 *Our competitors are relatively weak.*
- 

#### **4.4.2.2 Threat of substitutes**

Substitutes are products and services with similar or comparable functionality that meet the same needs and preferences of customers (Porter, 1980). Single-item measurement appears to be the established practice for measuring threat of substitutes (Galbreath and Galvin, 2008; Powell, 1996), and the single-item measurement developed by Galbreath and Galvin (2008) is

applied in this study. The measurement is a general statement regarding the degree to which firms are exposed to threat of substitutes, and it is adapted to fit the survey structure and scale.

**TABLE 4.4.5**  
**Threat of substitutes measurement**

---

*1 Our industry is exposed to great threats of substitutes.*

---

Single-item measurements such as this one are simple and easy to apply in a survey, but may not capture all relevant dimensions of a latent variable. However, substitute products and the degree to which a firm competes with such products are topics the key informants are likely to have the ability to understand and assess.

**4.4.2.3 Entry barriers**

The concept of entry barriers is concerned with how difficult it is for new players to enter the market (Porter, 1980). Single-item measures are often applied for measuring entry barriers in the industrial organization literature, and Galbreath and Galvin (2008) draw directly on Porter’s (1980) framework and definitions in their measurement development. The measurement applied in this study is adopted from Galbreath and Galvin (2008) and adapted to the survey structure. As for the threat of substitutes, entry barriers are measured by a single, general statement assessed by the key informants.

**TABLE 4.4.6**  
**Entry barriers measurement**

---

*1 It is very difficult for new firms to enter and compete in our industry.*

---

**4.4.2.4 Market turbulence**

Market turbulence is defined here as the rate of which the composition of customers and their needs and preferences changes (Kohli & Jaworski, 1990), and Jaworski and Kohli (1993)

developed a six-item scale for measuring market turbulence. The items include current customers and their changing needs, the degree to which a firm is attracting new customers, and the extent to which new customers have different needs than current ones.

**TABLE 4.4.7**  
**Market turbulence measurement**

---

<i>1</i>	<i>In our industry, customers' product preferences change quite a bit over time.</i>
<i>2</i>	<i>Our customers tend to look for new products all the time.</i>
<i>3</i>	<i>Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant.</i>
<i>4</i>	<i>We are witnessing demand for our products and services from customers who never bought them before.</i>
<i>5</i>	<i>New customers tend to have product-related needs that are different from those of our existing customers.</i>
<i>6</i>	<i>We cater to many of the same customers that we used to in the past.</i>

---

When conducting the think-loud protocols, several industry representatives were confused by Item 3 stating that customers are sometimes price-sensitive and sometimes not. For others, it appeared to be clear because this was indeed the case in their company. However, when asked, all think-loud protocol participants agreed that this item could be misinterpreted or might confuse key informants. Despite these findings, the item was not changed because of its relevance to the market turbulence concept. Simplifying the item to “customers are very price-sensitive” would result in a lost connection with the latent variable because only when price is important in some situations and for some customers, and other times not, will this item be an indication of market turbulence.

**4.4.2.5 Buyer power**

Buyer power is defined as the bargaining power relative to customers and refers to customers' abilities to negotiate lower prices (Porter, 1980). A single-item measurement was adopted from Galbreath and Galvin (2008) and adapted to the survey structure. Key informants are expected to be able to assess the degree of buyer power because they, as general managers, are likely to have been involved in negotiations with customers or at least be well aware of who their customers are and what relations the company has with them.

**TABLE 4.4.8**  
**Buyer power measurement**

---

*1 Our customers have high degrees of bargaining power over our company.*

---

#### **4.4.2.6 Supplier power**

Supplier power is defined as the bargaining power relative to suppliers and their abilities to negotiate greater value in terms of higher prices for their products and services (Porter, 1980). Like buyer power, a single-item measurement is applied in this study, adopted from Galbreath and Galvin (2008). This measurement is, however, reversed because it actually measures the opposite of supplier power, but the item does not have a negative form and is not likely to cause any interpretation issues for the key informants. Key informants are expected to be able to assess the degree of power their own firm has over suppliers.

**TABLE 4.4.9**  
**Supplier power measurement**

---

*1 We have high degrees of bargaining power over our suppliers.*

---

#### **4.4.2.7 Technological turbulence**

Technological turbulence refers to the rate of change in technology associated with the production of products and services and the processes of delivering these products and services to customers (Kohli and Jaworski, 1990; 1993). The five-item measurement scale developed by Jaworski and Kohli (1993) is adopted in this study. The scale includes two major dimensions of technological turbulence: the degree of change and the extent to which technological changes represent opportunities and the realization of product ideas. The items are applied in their original form.



**TABLE 4.4.10**  
**Technological turbulence measurement**

- 
- 1 *The technology in our industry is changing rapidly.*
  - 2 *Technological changes provide big opportunities in our industry.*
  - 3 *It is very difficult to forecast where the technology in our industry will be in the next 2 to 3 years.*
  - 4 *A large number of new product ideas have been made possible through technological breakthroughs in our industry.*
  - 5 *Technological developments in our industry are rather minor.*
- 

### **4.4.3 Firm capabilities**

Ordinary capabilities are defined as the firm's abilities to "make their living in the short term" and refer the firm's ad hoc response to feedback and changes in their environment (Drnevich and Kriauciunas, 2011; Winter, 2003). Dynamic capabilities are the abilities of firms to utilize market intelligence and respond to signals of opportunities and threats in the market by developing new resources and resource combinations, developing new products and services, and creating new processes (Drnevich and Kriauciunas, 2011; Winter, 2003). Not many attempts have been made to operationalize these concepts into valid measurement scales (Wang and Ahmed, 2007), but one recent study has made a considerable contribution towards establishing such scale. Drnevich and Kriauciunas (2011) develop scales of ordinary and dynamic capabilities in their study of a firm's use of IT resources, and their measures are adopted in this study and adapted to the topic of market orientation.

As ordinary and dynamic capabilities are concerned with abilities of firms to enhance existing and develop new products and services, processes, and customer relations, the conceptual similarities to the responsiveness dimension of market orientation are prominent. However, the measurement scale of the responsiveness dimension primarily focus on systems and routines mainly concerned with ongoing business, and for immediate response to competitors' price changes and campaigns, customer complaints, and general changes in the business environment. Ordinary and dynamic capabilities measures focus on the degree of utilization of market intelligence for innovation purposes.

**TABLE 4.4.11**  
**Ordinary capabilities measurement**

- 
- 1 *To what extent has market intelligence been utilized in enhancing existing products and services?*
  - 2 *To what extent has market intelligence been utilized in enhancing existing business processes?*
  - 3 *To what extent has market intelligence been utilized in enhancing existing customer relationships?*
  - 4 *To what extent has market intelligence been utilized in enhancing existing ways of doing business?*
- 

**TABLE 4.4.12**  
**Dynamic capabilities measurement**

- 
- 1 *To what extent has market intelligence been utilized in the development of new products and services?*
  - 2 *To what extent has market intelligence been utilized in the development of new business processes?*
  - 3 *To what extent has market intelligence been utilized in the development of new customer relationships?*
  - 4 *To what extent has market intelligence been utilized in the development of new ways of doing business?*
- 

The scales are considered to be reflective, meaning that the items are effect variables and affected by the theoretical constructs. The items were measured using a five-point Likert scale where 1 = To a very small extent and 5 = To a great extent.

#### **4.4.4 Effectiveness and efficiency**

Performance is defined as expected relative firm effectiveness and efficiency. In the market orientation literature a number of different measures of both effectiveness and efficiency are evident, and the starting point for the development of measures used in this study is a review of these concepts and measures in order to identify which aspects of these concepts that would be valuable for this study. The results indicate that innovation, customer, and business performance consequences may be of particular interest in regard to both market orientation, the potential moderating effects of environment, as well as the role of ordinary and dynamic capabilities. Based on Kohli and Jaworski (1990; 1993; 1996), Sandvik and Sandvik (2003), Hoque and James (2000), Kirca et al. (2005), Galbreath and Galvin (2008), and Drnevich and Kriauciunas (2011), the following measures have been adopted in this study:

**TABLE 4.4.13**  
**Effectiveness and efficiency items**

---

1	<i>Relative operating margin</i>
2	<i>Relative profit margin</i>
3	<i>Relative cost efficiency</i>
4	<i>Relative capacity utilization</i>
5	<i>Relative rate of innovation</i>
6	<i>Relative customer satisfaction</i>

---

Items 1 and 2 are concerned with financial performance and constitute the profitability construct. Items 3 and 4 refer to efficient resource exploitation and constitute the operational efficiency construct. The effectiveness concepts included in this study are both measured by single-item measures: Rate of innovation (Item 5), and customer satisfaction (Item 6). The items are considered effects of the latent variables, meaning that the effectiveness and efficiency measurement models are reflective.

Key informants were asked to evaluate these items using a five-point Likert scale where 1 = Much below industry average and 5 = Much above industry average, based on their expectancies for 2012. Expected effectiveness and efficiency measures were applied to this study to capture what firms' current level of market orientation is expected to result in in the future, as opposed to measuring firms' effectiveness and efficiency the past 3-5 years which seems to be more common in the literature. Measuring historical performance and current level of market orientation, and hypothesizing a causal relationship between them does not seem to satisfy the causality criteria (Bollen, 1989). Applying measures of expectancies, however, one must be aware of the risk of the response to some extent being affected by the key informants' optimism and hopes for the future.

#### **4.4.5 Control variables**

Control variables are included in studies for isolation purposes, which is an important assumption underlying correlation research design. This issue was discussed in Section 4.1.

In this study, the environmental variables will serve as the primary control variables in the analyses, in line with Narver and Slater (1990). These factors will account for the industry effect on performance, which is shown to explain approximately 20% of financial

performance variance (McGahan and Porter, 1997; Powell, 1996; Rumelt, 1991). However, some additional control variables concerning firm and respondent characteristics have been included for classification purposes. Characteristics relevant for market orientation research have been discussed to a limited degree in the literature. Hence, the characteristics measures included in this study were primarily developed in close dialog with experts and representatives from the industry. The following control variables have been included:

#### ***4.4.5.1 The firm's core operation***

Prior market orientation research has made distinctions between service firms and manufacturing firms (Cano et al., 2004; Kirca et al., 2005), and the results indicate that the market orientation – profitability relationship is stronger for service than for manufacturing firms. More than half of the total number of employees in the Norwegian ICT industry is in service and/or software development, and service accounts for the greatest growth of employment (ICT Norway). Hence, the distinction between service and manufacturing firms may be relevant in this industry. Industry representatives and experts argued that simply asking respondents to state whether they represent a service or manufacturing firm would be odd, thus they helped define firm categories that the respondents were likely to recognize and be able to identify with.

Key informants were asked to state the the firm's core operations by choosing one of the following alternatives: (1) Services and consultancy, (2) Selling software developed in Norway, (3) Selling software developed outside Norway, (4) Hardware, and (5) Telecommunication. They were also free to state their core business in an open text section.

#### ***4.4.5.2 Number of employees***

As firm size in the Norwegian ICT industry ranges from 1 to more than 1000 employees, the key informants were asked to state the number of employees in their firm in order to separate smaller firms from the large ones and consider the data from the individual groups. The respondents placed their company within one of the following intervals: (1) 0-19, (2) 20-49, (3) 50-99, (4) 100-249, and (5) 250 or more. These intervals were specified partially based on

the classification of small, medium-size and large firms by the Norwegian government, and partially based on response from industry representatives.

#### ***4.4.5.3 Location of main office***

Representatives from the industry argued that whether a company's main office is located in or outside of Norway may influence the extent to which market orientation will affect firm effectiveness and efficiency. Firms with their main office abroad may not be free to do any market intelligence generation of their own, and their performance may be caused by other variables. Thus, the key informants were asked to state whether their main office was located in Norway or outside of Norway.

#### ***4.4.5.4 Key informants' position***

To ensure that the data included in our analyses originated from relevant sources the key informants were asked to state their position within their company. They were given the following alternatives: (1) General Manager or equivalent, (2) Financial Manager, (3) Marketing Manager, (4) Head of Product Development, Innovation, R&D or similar, (5) Head of Human Resources, (6) Head of Department or other middle management role, (7) Secretary, Executive Officer or other administrative role, or (8) Other – please specify.

## 4.5 Data collection

The data was collected by a web survey prepared in MI Pro Research Studio 5 and distributed by email to each firm within the sample frame. The complete questionnaire is reported along with the cover letters for both the initial invitation together with the reminder inquiry in Appendix A.

Web surveys based on self-selection sampling is a quick and easy method of data collection as it can be distributed to a large number of recipients and holds a potential for large amounts of data. Also, it allows the researcher to monitor the survey response and the data as it is collected, and as the data is collected digitally, time dedicated to manual recording of the data was eliminated. In addition, the researcher is able to distribute reminder inquiries to all or selected recipients, while maintaining the anonymity of key informants.

However, there are also some weaknesses and limitations associated with web surveys. First, it is crucial that the questions are simple and unambiguous, and easy to respond to. This is important because the researcher will not be able to help the key informants if questions or instructions are not clear. Second, the researcher is not able to ask additional questions for clearer understanding of the key informants' response and valuable information, and the key informants may have limited ability to elaborate their answers. Third, despite distributing the survey inquiry to relevant key informants, the researcher has no way of controlling that these individuals actually are the ones completing the survey. And fourth, although web surveys offer potential for mining for large amount of data, response rates are usually low and recipients may find it especially easy to ignore email inquiries compared to inquiries made by phone or face-to-face.

The web survey was distributed to all firms within the sample frame. Due to some inoperative email addresses and several registered multiple times in our database, inquiries including a unique survey link were distributed to 1 982 recipients. A reminder email was distributed one week after the initial invitation, and the web survey was open for another two weeks before it was closed.

After three weeks and two email requests 304 recipients had visited the web survey and 122 key informants had completed their response. The number of completed survey responses does not satisfy the target size of the sample of > 154. The number is, however, enough to produce significant results, and the risk of type II-errors of incorrectly accepting the null-

hypotheses is low. The most problematic issue with the relatively small sample size, in this study, is conducting factor analyses with many items, i.e. the divergent validity test. This issue is discussed in Section 5.2.2.

## **5 ANALYSES AND RESULTS**

This chapter presents the results of the data analyses of the study. First, the adequacy of the data is assessed in Chapter 5.1, by inspecting the descriptive statistics. Next, the measurement model is assessed in terms of validity and reliability in Chapter 5.2. Finally, Chapter 5.3 presents the results from the hypotheses testing.

All analyses were conducted using the statistical analyses tool IBM SPSS Statistics 19.



## 5.1 Descriptive statistics

Before conducting multivariate analyses, the adequacy of the data must be assessed by inspecting the distributional characteristics and missing data for the items and variables (Bagozzi and Yi, 1988). Univariate normal distribution is a key assumption of multivariate analyses and is assessed by evaluating the skewness and kurtosis of each item. Missing data is problematic when the amount is considerable, and alternative methods of dealing with missing data should be evaluated. This issue will be discussed subsequently.

Normally distributed data consist of variables where the collected data are distributed like a bell-shaped density curve with a single peak around the mean. Skewness refers to the symmetry, or lack of symmetry, of the distribution and to what extent it leans to either side. Kurtosis refers to how peaked the curve is. When data are perfectly normally distributed the density curve is perfectly symmetrical meaning that the data are distributed equally on both sides of the mean, and the curve is neither too narrowly nor too broadly peaked. For such data, both skewness and kurtosis are 0. It is, however, extremely rare for data collected in studies such as this one to be perfectly normally distributed. If skewness and kurtosis values are high, the normality assumption is violated, which may lead to biased parameter estimates and unreliable model fit (Bagozzi and Yi, 1988). According to Kaplan (1990), skewness and kurtosis values that exceeds 1 in terms of absolute value should be treated with caution, while Kline (2011) characterize skewness values exceeding 3 and kurtosis values exceeding 8 as extreme. The distribution characteristics of the collected data are assessed by an inspection of the skewness and kurtosis for each item or variable.

The skewness and kurtosis of the different items included in this study are reported in the descriptive statistics in Appendix B, and all of the items are relatively normally distributed. Six of the 61 items have skewness values of more than 1, and the kurtosis value exceeds 1 for nine of the items. “Ordinary\_capabilities1” is the item with the highest combination of skewness and kurtosis (skewness: -1.236, kurtosis: 1.504), and “Market\_turbulence6” has the second highest (skewness: 1.202, kurtosis: 1.382). These skewness and kurtosis values, although exceeding 1, are not extreme according to Kline (2011) and do not dramatically departure from normality. All of the items with skewness and/or kurtosis values exceeding 1 are also one of several items constituting multiple-item constructs. Indexes constructed by multiple items generally are nearer to normality (Sandvik, 1998). Additionally, non-normal

items for multi-item constructs will be eliminated through the measurement model assessment process if they do not satisfy validity criteria. Thus, none of the items were deleted from analyses based on the distribution assessment. Descriptive statistics for the constructed indexes is provided in Table 5.1.1 documenting that the skewness and kurtosis values exceed 1 for two indexes. The firm capabilities index has the highest skewness and kurtosis values (skewness: -1.116, kurtosis: 2.216). The skewness value does, however, only slightly exceed 1, and the kurtosis value indicates that the distribution of firm capabilities is somewhat peaked, but is not extreme according to Kline (2011). Hence, all 13 variables are considered to satisfy the normality assumption.

**TABLE 5.1.1**  
**Descriptive statistics**

	Mean	Std. dev	Skewness	Kurtosis	N
Market orientation	3.607	.572	-.397	.486	145
MOgeneration	3.720	.693	-.417	-.092	145
MDissemination	3.599	.787	-.360	-.311	145
MResponsiveness	3.503	.592	-.386	1.100	145
Firm capabilities	3.729	.794	-1.116	2.216	144
Competitive intensity	2.623	.795	.057	-.499	124
Threat of substitutes	2.669	.960	.037	-.341	124
Entry barriers	3.016	1.028	.013	-.340	124
Market turbulence	3.351	.843	-.004	-.099	124
Buyer power	3.097	.869	-.190	-.219	124
Technological turbulence	3.909	.841	-.917	1.132	124
Supplier power	3.089	.856	.224	-.067	124
Rate of innovation	3.689	.988	-.487	-.103	122
Customer satisfaction	4.074	.883	-.658	.008	122
Operational efficiency	3.762	.851	-.370	-.007	122
Profitability	3.574	1.071	-.498	-.127	122

Of the total of 304 key-informants, 122 completed the survey. A large number of the informants aborted their response early in the survey, and only 145 key-informants (48%) reached the market orientation items in the survey. As shown in Table 5.1.1 the number of cases N = [122,145], meaning that the number of missing data for each variable included in

the hypothesized model, varies from 1 to 23. Market turbulence, Technological turbulence, Competitive intensity, Entry barriers, Threat of substitutes, Buyer power and Supplier power all have 15% missing cases, and the amount of missing cases for all the performance variables is 16%. There is no clear guideline of what amount of missing data is too much, but there are mainly two methods of dealing with missing data in multivariate analyses: listwise and pairwise deletion. Listwise deletion excludes all data from cases where data are missing for any of the variables included in the multivariate test, resulting in a reduction of the sample size. As larger samples generally will increase the statistical power, listwise deletion could affect the p-values. Pairwise deletion only excludes the specific missing values in any pair of variables included in the multivariate test. The result is that all available data is included, and the different estimated correlation coefficients may not be based on the same number of cases. Generally, listwise deletion is recommended when the sample size is quite large because it excludes data from respondents who, for reasons related to irrelevant or uninteresting topics of the study, have aborted their completion of the survey. Pairwise deletion is recommended for analyses with small sample sizes because all available data is included, despite the risk of including data from respondents who may not be representative for the population. The complete sample size of 122 cases in this study is not large and pairwise deletion was considered. However, due to the risk of including data from less reliable respondents, listwise deletion was applied in the further analyses.

In the following sections, the measurement model is assessed, the validity and reliability issues are discussed, and the indexes of the variables are constructed.

## **5.2 Measurement model assessment and index construction**

Before the structural model can be tested, the measurement model needs to be assessed in order to establish the fit of the measurement model to the data. If the hypothesized model is tested using multivariate regression analyses without any control of the measurement model there is no way of knowing whether a lack of fit is caused by unsatisfactory fit in the measurement model or the hypothesized relations among the variables. If the measurement model does not fit the data, the theory of the structural model should be modified before it can be tested (Mitchell and Jolley, 2010).

The fit of the measurement model is tested by assessing the validity and reliability of the measurement scales. The validity of the measurement model ensures the absence of nonrandom measurement error and multicollinearity that are both important regression assumption. In this study, both formative and reflective measurement scales are applied, and different methods of testing the validity and reliability must be conducted for the two types of scales. Only for the reflective measurement models can validity and reliability be empirically tested by conducting exploratory factor analyses. First, the formative measurement scale of market orientation will be assessed. The validity and reliability of the reflective scales of the remaining constructs will be assessed subsequently.

### **5.2.1 Assessment of the market orientation scale**

As discussed in Chapter 4.4, the market orientation scale is formative meaning that the different items are cause indicators of the latent variables. The indicators determine the dimensions and not the reverse, and each of the indicators may be an important facet of the construct (Bollen and Lennox, 1991). As the different indicators of a formative index all have unique effects on the dimension, the internal consistency among these indicators is irrelevant to the validity of the measurement scale. For example, six different items measure the intelligence generation dimension of market orientation that all have their own independent contribution to the dimension. All other indicators being equal, a firm polling end users to assess the quality of products and services (Item 4) to a greater extent than a competitor, will in sum do more intelligence generation than that competitor, thus, be considered more market oriented. Contrary to the internal consistency assumption of validity, the six indicators of

intelligence generation are all affecting the dimension regardless of whether their effects are the similar (linear or non-linear) and whether the indicators are correlated. Thus, excluding one or more items based on internal inconsistency means risking the elimination of important facets of the dimension and could narrow down the initial concept (Bollen and Lennox, 1991).

A principal component analysis is conducted for each of the three dimensions of market orientation in order to identify the number of components that constitutes each dimension. These analyses are reported in Tables 5.2.1 – 5.2.3, and the consequences for index constructions are discussed.

Intelligence generation is the first dimension of market orientation, and six items measure this dimension. As reported in the principal component analysis, intelligence generation consists of two components, please see Table 5.2.1. When the dimension consists of multiple components, these are normally weighted equally in the construction of the index. However, the factor loading of Item 2 is positive for Component 1 and negative for Component 2, which means that if this item were included in both components the effect of Item 2 would be outweighed. Thus, Item 2 is only included in the first component, and Component 2 consists only of Item 5. The two components are weighted equally in the index construction indicating that Item 5 is weighted 50%.

**TABLE 5.2.1**  
**Principal component analysis of *intelligence generation***

	Component	
	1	2
1. Customer meetings	.689	
2. In-house market research	.673	-.482
3. Quick to detect changes	.668	
4. Poll end-users	.735	
5. Slow to detect shifts		.877
6. Effects of change in environment	.633	

Five items are applied to measure intelligence dissemination and this dimension also consists of two distinct components, see Table 5.2.2. These components are weighted equally in the

index, and as Item 3 and 4 evidently are parts of both components, these items are assigned more weight relative to the other items.

**TABLE 5.2.2**  
**Principal component analysis of *intelligence dissemination***

	Component	
	1	2
1. Interdepartmental meetings	.878	
2. Interdepartmental discussions	.881	
3. Everyone shortly knows about changes	.558	.520
4. Dissemination of customer satisfaction data	.600	.415
5. Dissemination of information about competitors		.899

The responsiveness dimension of market orientation is measured using nine items. Including all nine items, the principal component analysis derived three components and Item 7 differentiated from the other eight items. The bivariate correlations among the market orientation items and the performance items were inspected, and Item 7 of the responsiveness scale did not correlate with any of the 16 performance items included in the data. Item 7 is reversed and states, “Customer complaints fall on deaf ears in this business unit”. As discussed in Chapter 4.4, the use of reversed items is subject to debate due to the risk of key informants’ misinterpretations. This led to the elimination of Item 7, and a new principal component analysis was conducted. As reported in Table 5.2.3, the responsiveness dimension consists of two components. Due to the number of items the index was constructed as a single-component index and all items were equally weighted.

**TABLE 5.2.3**  
**Principal component analysis of *responsiveness***

	Component	
	1	2
1. Quick response to competitors' price changes		.859
2. Ignore changes in customer needs	.546	-.332
3. Review of product development efforts	.588	
4. Plan response periodically across departments	.492	.436
5. Immediate response to competitor campaigns	.363	.557
6. Coordinated marketing activities	.747	
8. Timely implementation of marketing plans	.814	
9. Concerted actions to modify products	.638	

Based on these analyses, three indexes were constructed for the different dimensions of market orientation. The validity and reliability of these first-order variables are still uncertain (Bollen and Lennox, 1991), but their face validity has been established (Jaworski and Kohli, 1993) and the normality of these indexes is better than the one of single items. Please see Table 5.1.1 for descriptive statistics.

The three dimensions of market orientation are formative indicators of the market orientation construct, and the principal component analysis of the three indexes as reported in Table 5.2.4. The market orientation index is treated as an additive index of the three sub-dimensions.

**TABLE 5.2.4**  
**Principal component analysis of *market orientation***

	Component
	1
Generation of market intelligence	.769
Dissemination of market intelligence	.855
Responsiveness to market intelligence	.856

In the following sections validity and reliability issues regarding the remaining measurement model are discussed.

## 5.2.2 Validity and reliability of the reflective measurement scales

For reflective measurement scales, validity and reliability can be tested empirically by using several methods of multivariate data analysis. Convergent and divergent validity, reliability, and discriminant validity is tested and reported, and valid and reliable indexes are constructed based on the results of these analyses.

### 5.2.2.1 Convergent validity

Convergent validity refers to the extent to which all indicators developed to reflect a latent variable actually do. By conducting factor analyses of the scales of all the variables respectively, the degree of covariation among the indicators is estimated and the convergent validity can be assessed. The factor loadings of the items express the regression or correlation coefficients between each of the indicators and the extracted factor(s). There is no absolute requirement for the factor loadings to be regarded as good enough, but there are a number of guidelines. First, the closer the factor loadings are to 1, the more the items are correlated with the extracted factor(s). The range of minimum requirements of factor loadings evident in the literature is from 0.3 (Dillon and Goldstein, 1989) to 0.8 (Tabachnick & Fidell, 2007).

Although it is argued that the factor-loading requirement should be high when sample size is small (Tabachnick & Fidell, 2007), the constructs studied here are likely to be influenced by a large number of variables and it is not possible to include all potential effects in a single study. Thus, the factor-loading requirement should not be too strict and factor loadings  $> .5$  are considered satisfactory in this study, which is a frequently applied rule of thumb (Hair, Anderson, Tatham and Black, 1998).

The factor analysis testing the convergent validity of the *competitive intensity* measurement scale resulted in the exclusion of Item 3 due to factor loading  $< .5$ . Additionally, Item 6 was excluded because the divergent validity test showed strong loadings on a different factor. The factor-loadings of the remaining four items range from .571 to .704, which are all satisfactory, please see Table 5.2.5. Eigenvalue of the factor is 2.393 and variance explained is 59.8%. The competitive intensity scale is considered convergent valid.



**TABLE 5.2.5**  
**Factor analysis of *competitive intensity***

	Factor
	1
1. Competition is cutthroat	.571
2. "Promotion wars"	.760
3. Matching competitors	-
4. Price competition a hallmark	.688
5. Competitive moves every day	.704
6. Weak competition	-

Excluded items are:

*"Anything that one competitor can offer others can match readily."*

This item does not appear to be significantly correlated with the latent variable as its factors loading is  $< .5$ . Competitors may be able to match each other's market offerings regardless of whether the industry would be characterized as highly competitive intense, and it is the degree to which they use that aggressively in the battle for customers that represent the intensity of the competition.

*"Our competitors are relatively weak."*

This item is reversed, and it appears to be highly correlated with and representing a different construct.

The factor analysis of the *market turbulence* measurement scale resulted in the exclusion of Items 3-6 due to their unsatisfactory factor loadings  $< .5$ . Only Items 1 and 2 consistently reflect the same factor. When Items 3-6 were excluded, both remaining items display factor loadings of .853. This is reported in Table 5.2.6. The Eigenvalue of that factor is 1.454 and explained variance is 72.7%.

**TABLE 5.2.6**  
**Factor analysis of market turbulence**

	Component
	1
1. Change in customer needs over time	.853
2. Customers look for new products all the time	.853
3. Sometimes price-sensitive, but sometimes price is unimportant	-
4. Demand from new customers	-
5. New customers have different needs	-
6. Cater to the same customers	-

The following items were excluded from the market turbulence index:

*“Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant.”*

This item may be easy to misinterpret because of the contradiction between the customers sometimes being price-sensitive and price other times being relatively unimportant. It may not be clear to the key informants what to answer if customers are always price-sensitive, or if price always is relatively unimportant.

*“We are witnessing demand for our products and services from customers who never bought them before.”*

This item is concerned with the attraction of new customers, contrary to Item 1 and 2, which are concerned with current customers and their needs. These issues appear not to be highly correlated, and the issue of new or potential customers and markets may in fact not be related to the situation regarding current customers and markets.

*“New customers tend to have product-related needs that are different from those of our existing customers.”*

This item appears to be more related to the issue of new customers and markets, like the item above.

*“We cater to many of the same customers that we used to in the past.”*

This item is reversed and the quality of the data may be reduced due to key informants’ potential lack of awareness. Besides, the fact that firms cater to the same customers does not necessarily indicate whether the current customers and market(s) are turbulent or not.

All five items for *technological turbulence* load on one single factor, and the factor loadings range from .540 to .895, thus they are all > .5. However, in the divergent validity test Items 3 and 5 also appeared to correlate highly with other factors and they were excluded from the measurement model. The convergent validity of the remaining items is reported in the factor analysis in Table 5.2.7. In addition to the factor loadings being > .5, the Eigenvalue is 2.373 and the variance explained is 79%.

**TABLE 5.2.7**  
**Factor analysis of *technological turbulence***

	Factor 1
1. Rapidly changing technology	.834
2. Technological change provide opportunities	.926
3. Difficult to forecast the technology 2-3 years ahead	-
4. Technological breakthroughs make new ideas possible	.729
5. Technological developments are minor	-

Excluded items:

*“It is very difficult to forecast where the technology in our industry will be in the next 2 to 3 years.”*

In the ICT industry technology is constantly changing and being developed. However, despite the rapid and dynamic characteristics of the technological developments, firms operating in this industry are likely to both contribute to this development themselves to a fairly large extent, and make considerable efforts to keeping up and staying in tune with the developments. Thus, firms may actually be very well able to anticipate where the technology is going, at least in a relatively short term perspective such as 2 to 3 years.

*“Technological developments in our industry are rather minor.”*

This item is reversed as is discussed in Section 3.3.

The factor analysis of ordinary capabilities shows how all four items reflect the same latent variable as one factor is extracted, please see Table 5.2.8. The factor loadings range from .772 to .815, all satisfactory according to the minimum requirement of > .5. The Eigenvalue of the

single extracted factor is 2.901 and 72.5% of the variance in this factor is explained by the indicators. Thus, convergent validity of the ordinary capabilities measurement model is ensured.

**TABLE 5.2.8**  
**Factor analysis of *ordinary capabilities***

	Factor
	1
1. Enhance existing products and services	.772
2. Enhance existing business processes	.797
3. Enhance existing customer relationships	.800
4. Enhance existing ways of doing business	.815

As reported in Table 5.2.9, all four indicators of dynamic capabilities load on one single factor. The factor loadings range from .722 to .818, Eigenvalue is 2.770 and the items explain 69.2% of the variance in the factor, and thus, convergent validity is ensured.

**TABLE 5.2.9**  
**Factor analysis of *dynamic capabilities***

	Factor
	1
1. Develop new products and services	.757
2. Develop new business processes	.722
3. Develop new customer relationships	.775
4. Develop new ways of doing business	.818

Operational efficiency and profitability both consist of two items, and factor analyses are conducted to assess the convergent validity of the measurement models. The factor loadings reported in Tables 5.2.10 and 5.2.11 all satisfy the minimum criteria of > .5. Eigenvalue of the expected operational efficiency component is 1.826 and the items appear to explain 91.3% of the component’s variance. For the expected profitability construct, an Eigenvalue of 1.958 and variance explained of 97.9% are reported. Thus, the convergent validity of the two measurement models is satisfactory.

**TABLE 5.2.10**  
**Factor analysis of *operational efficiency***

	Component
	1
Cost efficiency	.955
Capacity utilization	.955

**TABLE 5.2.11**  
**Factor analysis of *profitability***

	Component
	1
Profit margin	.989
Operating margin	.989

Entry barriers, threat of substitutes, buyer power and supplier power are all single-item variables and their validity cannot be assessed by conducting empirical tests, as is the case for expected rate of innovation and customer satisfaction.

### **5.2.2.2 Divergent validity**

Divergent validity means that there is no conceptual overlap between the constructs (Bollen, 1989). This is commonly tested by conducting factor analysis to control that the latent variables share more variance with their respective measures than they do with the other measures in the model. All relevant items should be included in the analysis and the factor loadings and cross loadings should be inspected. Factor loadings are the variance shared with the intended latent variable, and cross loadings are variance shared with other constructs. When assessing these loadings, factor loadings should generally be larger than cross loadings, and factor loadings > .5 are generally considered significant (Hair et al., 1998). This is however a conservatively high cutoff and may be adjusted if needed (Hair et al., 1998). Based on the factor loadings reported in Table 5.2.12, the cutoff is set to .45.

The divergent validity of independent and dependent variables are tested separately. Factor analysis is a large-sample statistical procedure (Meyers et al., 2006) and generally requires large sample sizes than multiple regression analyses. Comrey and Lee (1992) describe the adequacy for factor analyses of sample sizes below 200 as limited, and the more variables or

items included in the analysis the more problematic it becomes. Meyers et al. (2006) recommend a target ratio of 10 cases for every item, and with a total number of items 23 the data are roughly 100 cases short. Conducting two separate divergent validity tests is not standard procedure, but was necessary due to the relatively small sample size in this study.

Divergent validity of the independent variables included in the model is assessed by conducting a factor analysis of all exogenous factors with multiple-item reflective measurement models are included, and the analysis is reported in Table 5.2.12. It is evident that divergent validity for ordinary and dynamic capabilities as separate constructs is not satisfied, and all eight items are included in one single index of *firm capabilities*.

The concept of firm capabilities refer to firms' abilities to utilize market intelligence for innovation purposes, both in terms of developing and enhancing existing products and services, processes, and customer relations, and in terms of developing new products and services, processes, and customer relations. Although these are argued to be conceptually different, that distinction may not easily be captured by the measurement scales applied to this study. Key informants may not distinguish between the development of existing and new products and services, processes, and customer relations, and they are all regarded as innovation.

As reported in Table 5.2.12, all factor loadings are  $> .45$ , all cross loadings are  $< .45$ , and all factor loadings exceed cross loadings with at least  $.1$ . Hence, divergent validity is satisfactory for all exogenous variables.

**TABLE 5.2.12**  
**Divergent validity of *exogenous variables***

	Factor			
	1	2	3	4
1. Enhance existing products		.757		
2. Enhance existing business		.873		
3. Enhance existing customer		.741		
4. Enhance existing ways of doing		.791		
1. Develop new products/services		.736		
2. Develop new business processes		.797		
3. Develop new customer		.788		
4. Develop new ways of doing		.700		
1. Change in customers' needs over				.456
2. Customers look for new products				.648
1. Rapidly changing technology	.778			
2. Technological change provide	1.022			
4. Technological breakthroughs	.659			.324
1. Competition is cutthroat			.473	
2. "Promotion wars"			.765	
5. Competitive moves every day			.682	
6. Weak competition			.650	.333

To assess the divergent validity of the business performance measurement models, a discriminant validity factor analysis is conducted. As reported in Table 5.2.13, all factor loadings are high and all cross loadings are < .45. Thus, the convergent validity of the performance concepts appears to be satisfied.

**TABLE 5.2.13**  
**Divergent validity of *expected firm performance***

	Component			
	1	2	3	4
Operating margin		-.970		
Profit margin		-1.000		
Cost efficiency	.946			
Capacity utilization	.936			
Customer satisfaction				-.967
Rate of innovation			.991	

### **5.2.2.3 Reliability**

Reliability is the consistency of measurement and refers to the extent to which we can trust that multiple independent studies of the same phenomenon will provide similar results (Bollen, 1989; Mitchell and Jolley, 2010). This concept is different from the concept of validity because measures can be consistent but not valid in terms of representative for the latent variable. Many different empirical tests can be conducted to assess the reliability of measures, and Cronbach's  $\alpha$  is the most popular (Bollen, 1989). This is an easy-to-use and available method of reliability assessment and Cronbach's  $\alpha$  is a function of the number of items and the average inter-correlation among these items. Thus, Cronbach's  $\alpha$  is a measure of internal consistency. As reliability is related to high degrees of internal consistency, a common rule of thumb is to consider a measure with Cronbach's  $\alpha > .70$  as reliable.

Cronbach's  $\alpha$  does, however, potentially reward higher numbers of items, and two more methods of reliability assessment are applied. No single method of reliability assessment is ideal (Bollen, 1989), and multiple methods are preferable. Average variance extracted (AVE) expresses the relation between the variance captured by the items relative to the variance caused by measurement error. If the AVE is  $< .50$  the majority of the variance is due to measurement error and the reliability of the construct is questionable. Like Cronbach's  $\alpha$ , composite reliability is a measure of the internal consistency among the construct indicators, but composite reliability is not affected by the number of indicators. Composite reliability should exceed  $.60$  to satisfy the reliability requirements (Bagozzi and Yi, 1988).

Cronbach's  $\alpha$ , AVE and composite reliability for the reflective, multi-item measurement models are reported in Table 5.2.14. There are no methods for the assessment of the reliability of formative measurement models such as market orientation, and single-item measures such as entry barriers, threat of substitutes, buyer and supplier power, rate of innovation and customer satisfaction. Four of the six variables show satisfactory values for all reliability measures, while market turbulence has unsatisfactory Cronbach's  $\alpha$  (.623) and competitive intensity appears to be just below (.472) the AVE requirement. Cronbach's  $\alpha$  below the minimum value of  $.70$  are questionable but may be accepted when above  $.60$  (George and Mallory, 2003), as is the case for market turbulence. The AVE of competitive intensity indicates that the variance due to measurement error is greater than the variance due to the construct. However, although questionable, AVE values slightly below the  $.50$ -requirement



may be accepted. In this case, market turbulence and competitive intensity satisfy the other criteria for reliability, and are both considered to be reliable.

**TABLE 5.2.14**  
**Reliability tests**

Construct	Number of items	Cronbach's $\alpha$	AVE	Composite reliability
Market orientation	19	-	-	-
Firm capabilities	8	.928	.619	.929
Market turbulence	2	.623	.728	.843
Technological turbulence	3	.866	.695	.871
Competitive intensity	4	.775	.472	.777
Entry barriers	1	-	-	-
Threat of substitutes	1	-	-	-
Buyer power	1	-	-	-
Supplier power	1	-	-	-
Rate of innovation	1	-	-	-
Customer satisfaction	1	-	-	-
Operational efficiency	2	.904	.912	.953
Profitability	2	.978	.978	.980

#### **5.2.2.4 Discriminant validity**

Discriminant validity is concerned with the degree of correlation between the constructs in the model and is tested by a bivariate correlation analysis including all constructs. The constructs should not be highly correlated because they are argued to be conceptually different. If constructs are highly correlated they may cause multicollinearity problems. Perfect multicollinearity means that there is a linear relationship between two independent constructs and our regression analyses will not be able to produce meaningful estimates of the coefficients of the model. Correlation coefficients  $> .6$  may cause multicollinearity in small sample sizes ( $N < 200$ ) such as this one, but for larger samples such problems could occur for coefficients  $> .8$  (Hair et al., 1998).

The bivariate correlations among the constructs are reported in Table 5.2.15. All correlation coefficients are  $< .6$  except the correlation between market orientation and firm capabilities

which is .605. This correlation does, however, only slightly exceed .6 and according to Hair et al. (1998) this criteria is more a guide than an absolute rule and coefficients up to .8 may be accepted. Also, although related, the chances of a perfect linear relationship between two firm-internal concepts referring to factors that are so intertwined with the people, resources, culture and structure of an organization are close to zero, and the risk of perfect multicollinearity is extremely low. Hence, the correlation between market orientation and firm capabilities is accepted to be within the criteria.

**TABLE 5.2.15**  
**Discriminant validity test**

	MarketOrientation	Competitive intensity	Threat of substitutes	Entry barriers	Market turbulence	Buyer power	Supplier power	Technological turbulence	Firm capabilities	Rate of innovation	Customer satisfaction	Operational efficiency
Competitive intensity	-.012											
Threat of substitutes	-.029	.327***										
Entry barriers	.219***	-.051	.041									
Market turbulence	.262***	.329***	.120*	.051								
Buyer power	.048	.299***	.195***	.025	.175**							
Supplier power	-.239***	.028	-.166**	-.226***	-.051	-.044						
Technological turbulence	.141*	.307***	.293***	-.089*	.401***	.204***	.004					
Firm capabilities	.605***	.154**	.117*	.053	.422***	.189**	-.179**	.255***				
Rate of innovation	.432***	-.089*	.045	.113*	.363***	.036	-.106*	.313***	.459***			
Customer satisfaction	.456***	-.013	.020	.080*	.207***	.023	.057	.277***	.466***	.566***		
Operational efficiency	.413***	.027	-.023	.181**	.097*	.015	-.103*	.191**	.385***	.417***	.579***	
Profitability	.178**	-.091*	-.060	-.013	.055	-.109*	-.056	.086*	.101*	.315***	.352***	.493***

\*\*\* p < 0,01 (1-tailed)

\*\* p < 0,05 (1-tailed)

\* p < 0,10 (1-tailed)

### 5.3 Hypotheses testing and results

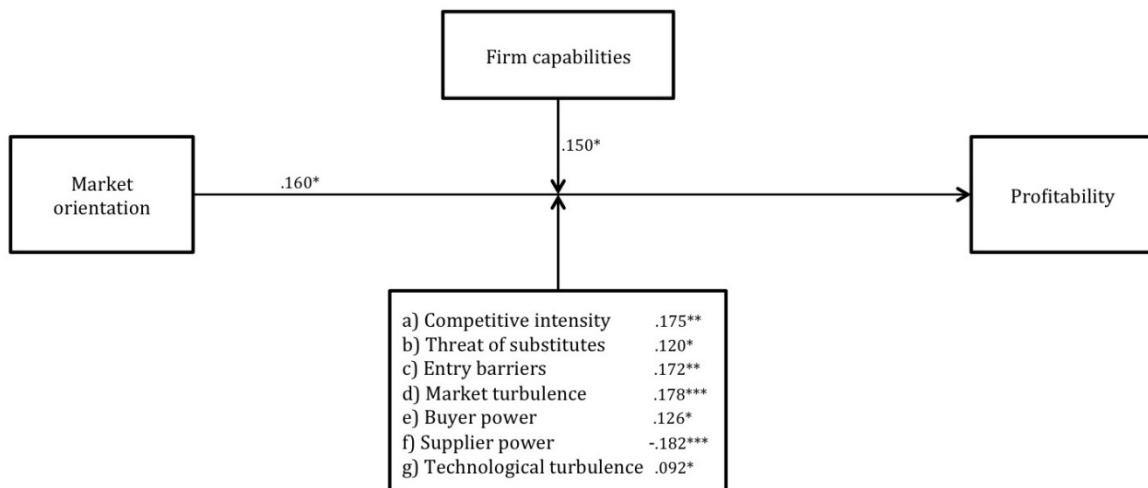
Multiple regression analyses were conducted to test the hypothesized models. Regression analyses test whether the variance in an endogenous (dependent) variable,  $Y$ , is explained by the variance in one or more exogenous (independent) variables,  $X_1, X_2 \dots X_k$ , by assuming that  $Y$  is a linear function of  $X_1, X_2 \dots X_k$ . A number of assumptions underly this method of analysis. The univariate normality assumption and the assumption of all exogenous variables being uncorrelated with the error term were both satisfied after an inspection of the descriptive statistics in Chapter 5.1 and the inclusion of control variables, discussed in Chapter 4.4. The absence of measurement error and perfect multicollinearity were addressed in Chapter 5.2, and all indexes included in the analyses satisfy the requirements. Also, curve estimation was conducted to ensure that the assumption of a linear regression is satisfied, thus that the mean value of the error term is zero.

Two models were developed for the purpose of this study, the moderator model and the mediator model. As ordinary and dynamic capabilities failed to pass the divergent validity test these concepts are treated as one common firm capabilities concept in the analyses. The results from the multiple regression analyses of the two models are presented separately in Sections 5.3.1 and 5.3.2.

### 5.3.1 Testing the moderator model

Research model I hypothesize a direct effect of market orientation on profitability and that this effect is moderated by the environmental conditions under which firms operate and the capabilities of firms to utilize market intelligence resulting from a market orientation in enhancing existing and developing new products, customer relations and processes. An overview of the regression results are provided by Figure 5.1 and the results are reported in detail in Table 5.3.1.

**FIGURE 5.1**  
**Regression results research model I**



First, to test the direct effect of market orientation on profitability a multiple regression analyses was conducted including the environmental factors and firm capabilities as control variables. The results support the hypothesized contribution of market orientation to profitability (H1) as the standardized regression coefficient of market orientation is .160 (significant at  $p < .10$ ). The F-value of the model is .859, and the model is not statistically significant. This means that the model does not provide enough evidence to support an acceptance of the model. The F-test is concerned with the significance of the whole model, while the t-test is concerned with the individual independent variable. As the t-test is

significant for the effect of market orientation on profitability and all other independent variables included are control variables, this is considered supportive of Hypothesis 1.

Next, the moderator analyses are conducted. These analyses are performed including market orientation, the hypothesized moderator and the multiplicative interaction of the two as the independent variables. Ideally, these hypothesized moderator effects would have been tested in one single regression analyses, but due to the relatively small sample size ( $N = 122$ ) such analysis would not produce any significant results. Analyses with a large number of independent variables need large sample sizes to produce significant results (Tabachnick and Fidell, 2007). The results of all moderator analyses are reported in Table 5.3.1. All models are statistically significant ( $F$  ranges from 1.769 to 2.765) and all hypothesized moderator variables interact with market orientation and produce significant contributions to profitability. However, two of the proposed moderators appear to have the opposite effect to the hypothesized one. Both entry barriers and technological turbulence were hypothesized to have a negative effect on the performance outcomes of market orientation, but the results indicate a positive moderating effect. Hence, the findings support Hypotheses 2a, b, and d-f, and Hypotheses 3, and Hypotheses 2c and g are not supported.

Noteworthy, the explanatory power of these models is quite low ( $R^2$  ranges from 4.3% to 6.5%), consistent with meta-analytical findings (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005), leaving a considerable amount of variance in profitability unexplained. Due to the hypothesized moderators being tested individually, it is not appropriate to compare  $R^2$  for the different regression models. However, regression analysis including market orientation, all seven environmental factors, firm capabilities, and all eight multiplicative interaction variables was conducted. Although the regression coefficients produced by this analysis are not significant due to the sample size, the  $R^2$  of that regression model is 13.6%. Hence, the explanatory power of the model increases when all factors are included.

**TABLE 5.3.1**  
**Regression analyses of research model I**

	Direct effect	Hypothesized moderators							
		Comp. intensity	Threat of subst.	Entry barriers	Market turb.	Buyer power	Supplier power	Techn. turb.	Firm capab.
Market orientation	.160* (1.317)	.244*** (2.531)	.210*** (2.240)	.202*** (2.206)	.176** (1.902)	.207*** (2.278)	.184** (2.000)	.196** (2.061)	.198** (1.752)
Multipl. interaction		.175** (1.818)	.120* (1.273)	.172** (1.927)	.178*** (1.991)	.126* (1.378)	-.182** (-2.003)	.092* (.970)	.150* (1.488)
Competitive intensity	-.084 (-.796)	-.089* (-.997)							
Threat of substitutes	-.046 (-.448)		-.064 (-.707)						
Entry barriers	-.047 (-.486)			-.061 (-.664)					
Market turbulence	.020 (.185)				-.008 (-.085)				
Buyer power	-.110* (-1.124)					-.136* (-1.507)			
Supplier power	-.038 (-.386)						.007 (.076)		
Techn. turbulence	.113* (1.060)							.068 (.750)	
Firm capabilities	.001 (.012)								.047 (.395)
F	.859	2.765**	1.968*	2.683**	2.650**	2.536**	2.714**	1.769*	2.048*
R <sup>2</sup>	.065	.066	.048	.064	.063	.061	.065	.043	.049

Standardized Beta (t-value)

Dependent variable: Profitability

\*\*\* p < 0,01 (1-tailed)

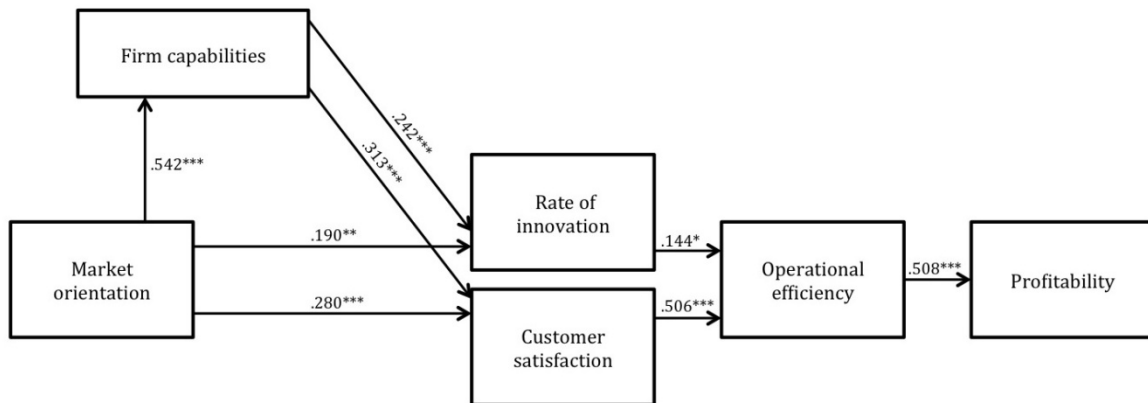
\*\* p < 0,05 (1-tailed)

\* p < 0,10 (1-tailed)

### 5.3.2 Testing the mediator model

Research model II hypothesize a total of four routes through which market orientation is expected to affect profitability, and include intermediate effectiveness factors of innovation and quality, and operational efficiency. Additionally, the potential mediating role of firm capabilities is hypothesized and tested in order to understand how firm capabilities may engage with market orientation in producing business performance outcomes. An overview of the regression results is provided in Figure 5.2, and Table 5.3.2 reports the results in detail.

**FIGURE 5.2**  
**Regression results research modell II**



The different steps in the hypothesized routes of mediators are tested separately, and the environmental variables are included as control variables in all regression analyses. First, the hypothesized direct effect of market orientation on firm capabilities is tested. The standardized regression coefficient is .542 (significant at  $p < .01$ ) which is supportive of Hypothesis 9. Next, the hypothesized effects of market orientation and firm capabilities on rate of innovation are tested, and support is provided for Hypotheses 4 and 10 as both regression coefficients are positive and significant (standardized beta .190 and .242, respectively, and significant at  $p < .05$  and  $p < .01$ ). Third, Hypotheses 5 and 11 are tested and supported, as market orientation produce a regression coefficient of .280 and firm capabilities a coefficient of .313 (both significant at  $p < .01$ ).

Fourth, rate of innovation and customer satisfaction contribute positively to operational efficiency as the regression coefficients are .144 and .506, respectively (significant at  $p < .10$  and  $p < .01$ ). Hence, the findings are supportive of Hypotheses 6 and 7. Finally, the effect of operational efficiency on profitability is positive and significant with a standardized Beta of .508 (significant at  $p < .01$ ) supportive of Hypothesis 8. Please see Table 5.3.2.

**TABLE 5.3.2**  
**Regression analyses of research model II**

	Dependent variables				
	Firm capabilities	Rate of innovation	Customer satisfaction	Operational efficiency	Profitability
Market orientation	.542*** (7.277)	.190** (1.901)	.280*** (2.748)		
Firm capabilities		.242*** (2.342)	.313*** (2.977)		
Rate of innovation				.144* (1.457)	
Customer satisfaction				.506*** (5.535)	
Operational efficiency					.508*** (6.055)
<i>Competitive intensity</i>	.024 (.310)	-.256*** (-2.941)	-.100* (-1.129)	.113* (1.281)	-.101* (-1.092)
<i>Threat of substitutes</i>	.065* (.857)	.021 (.255)	.004 (.049)	-.101* (-1.239)	-.006 (-.064)
<i>Entry barriers</i>	-.087* (-1.208)	.058 (.728)	.063 (.771)	.120* (1.559)	-.116* (-1.376)
<i>Market turbulence</i>	.238*** (3.005)	.206*** (2.261)	-.037 (-.399)	-.120* (-1.358)	.058 (.638)
<i>Buyer power</i>	.095* (1.321)	-.029 (-.365)	-.052 (-.630)	-.016 (-.199)	-.096* (-1.125)
<i>Supplier power</i>	-.047 (-.647)	.015 (.184)	.193*** (2.351)	-.117* (-1.499)	-.029 (-.349)
<i>Technological turbulence</i>	.028 (.349)	.225*** (2.572)	.217*** (2.434)	.064 (.714)	.008 (.083)
F	12.632***	7.180***	6.475***	8.032***	5.426***
R <sup>2</sup>	.468	.366	.342	.392	.278

Standardized Beta (t-value)  
 \*\*\* p < 0,01 (1-tailed)  
 \*\* p < 0,05 (1-tailed)  
 \* p < 0,10 (1-tailed)

In addition to providing support for all hypothesized effects among the intermediate factors, the multivariate regression analyses conducted to test research model II both produce significant models (F = [5.426, 12.632]) and considerably greater explanatory power than research model I. R<sup>2</sup> ranges from 27.8% (operational efficiency – profitability) to 46.8% (market orientation – firm capabilities) variance explained.



### 5.3.3 Test of mediating effects

The results reported in Table 5.3.2 support the hypotheses stating that market orientation affects profitability through routes of intermediate factors. These analyses do, however, not test the whole chain of effects, and doing so will identify the amount of these indirect effects and provide the amount of the total contribution to profitability of market orientation.

Several possible tests can be applied to establish the amount of the different documented indirect effects. In the research model hypothesized in this study, several mediators are included and hypothesized to work in sequence. For the purpose of analyzing the full model in its hypothesized sequential order, regression analysis using the PROCESS Procedure for SPSS developed by Andrew F. Hayes ([www.afhayes.com](http://www.afhayes.com)) was conducted. PROCESS is a computational tool for path analysis-based moderation and mediation analysis that is able to test models with up to four mediators operating in sequence or up to 10 operating in parallel (Hayes, 2012). The results are reported in Table 5.3.3. The indirect effect mediated through a single route of sequential intermediate variables are all positive, but not statistically significant. However, both the total indirect effect and the total direct and indirect effect of market orientation on profitability are positive and significant.

**TABLE 5.3.3**  
**Indirect effects, total indirect effect and total effect**

Hypothesized route	St Beta (t-value)
Market orientation → Rate of innovation → Operational efficiency → Profitability	.014 (.150)
Market orientation → Customer satisfaction → Operational efficiency → Profitability	.072 (.790)
Market orientation → Firm capabilities → Rate of innovation → Operational efficiency → Profitability	.0096 (.110)
Market orientation → Firm capabilities → Customer satisfaction → Operational efficiency → Profitability	.044 (.480)
Total indirect effect	.153** (1.700)
Total direct and indirect effect	.313*** (3.610)

\*\*\* p < 0,01 (1-tailed)

\*\* p < 0,05 (1-tailed)

\* p < 0,10 (1-tailed)

### 5.3.4 Summary of results

The findings are summarized in Table 5.3.4. Hypotheses 1, 2a, b and d-f, and 3-11 are all supported, leaving Hypotheses 2a and g unsupported as the effect proved to have the opposite sign to the expected.

**TABLE 5.3.4**  
**Summary of results**

Hypotheses	Exp.	Conclusion	Beta	T
<b>H1:</b> Market orientation → Profitability	+	Supported	.160*	1.317
<b>H2a:</b> Competitive intensity → MO-Profitability	+	Supported	.175**	1.818
<b>H2b:</b> Threat of substitutes → MO-Profitability	+	Supported	.120*	1.273
<b>H2c:</b> Entry barriers → MO-Profitability	-	Not supported (opposite)	.172***	1.927
<b>H2d:</b> Market turbulence → MO-Profitability	+	Supported	.178***	1.991
<b>H2e:</b> Buyer power → MO-Profitability	+	Supported	.126*	1.378
<b>H2f:</b> Supplier power → MO-Profitability	-	Supported	-.182**	-2.003
<b>H2g:</b> Technological turbulence → MO-Profitability	-	Not supported (opposite)	.092*	.970
<b>H3:</b> Firm capabilities → MO-Profitability	+	Supported	.150*	1.488
<b>H4:</b> Market orientation → Rate of innovation	+	Supported	.190**	1.901
<b>H5:</b> Market orientation → Customer satisfaction	+	Supported	.280***	2.748
<b>H6:</b> Rate of innovation → Operational efficiency	+	Supported	.144*	1.457
<b>H7:</b> Customer satisfaction → Operational efficiency	+	Supported	.506***	5.535
<b>H8:</b> Operational efficiency → Profitability	+	Supported	.508***	6.055
<b>H9:</b> Market orientation → Firm capabilities	+	Supported	.542***	7.277
<b>H10:</b> Firm capabilities → Rate of innovation	+	Supported	.242***	2.342
<b>H11:</b> Firm capabilities → Customer satisfaction	+	Supported	.313***	2.977

\*\*\* p < 0,01 (1-tailed)

\*\* p < 0,05 (1-tailed)

\* p < 0,10 (1-tailed)

## 6 DISCUSSION AND IMPLICATIONS

The purpose of this study was to provide clarity and insights regarding the complexity of how market orientation leads to superior business performance. To achieve this goal, the study was designed based on three research questions regarding how, and to what extent business performance effects of market orientation are (1) dependent on environmental conditions and (2) mediated through achieved effects on intermediate factors, and (3) how, and to what extent, market orientation engages with ordinary and dynamic capabilities in affecting business performance.

These questions were investigated by applying two different approaches represented by two complementary models of the effect of market orientation on business performance, the moderator model and the mediator model. As firm capabilities are investigated in an exploratory manner, this concept was included in both models and hypothesized to both moderate and mediate business performance outcomes of market orientation. The theoretical implications of the findings reported in Chapter 5.3 are discussed in Chapter 6.1. Chapter 6.2 addresses the managerial implications of this study, and the limitations and suggested directions for future research are discussed subsequently in Chapter 6.3.

## 6.1 Theoretical implications

The findings reported in Chapter 5.3 provide support for the hypothesized direct effect of market orientation on business performance in terms of profitability, consistent with the general view in the literature (Kirca et al., 2005; Kohli and Jaworski, 1990; Narver and Slater, 1990). The findings are also consistent with the findings in the literature of generally low explanatory power (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005), which confirms the need for explicating the complexity of the market orientation – business performance relationship and the circumstances under which it may be especially strong.

Kohli and Jaworski (1990) proposed environmental factors to moderate the business performance outcomes of market orientation in their comprehensive framework, but the findings in the literature only provide partial support for their propositions (Kirca et al., 2005). Slater and Narver (1994a) draw a rather strong conclusion as they reject the proposed moderating role of environment arguing that market orientation is important for all firms regardless of the state of their environment. Jaworski and Kohli (1993) conclude less strongly as they state that performance outcomes of market orientation are robust across contexts characterized by varying environmental dynamism. Indeed, market orientation appears to affect business performance in a large variety of contexts (Cano et al., 2004; Ellis, 2006; Kirca et al., 2005), but it is also evident that the amount of the effect varies to a great extent (Kirca et al., 2005).

The results of this study provide support for Kohli and Jaworski's (1990; 1993) general proposition of the moderating role of environment. Competitive intensity and market turbulence are both found to positively moderate the market orientation – performance relationship, and support Kohli and Jaworski's (1990) arguments. Technological turbulence, however, also appears to have a positive effect, contrary to their propositions. This indicates that a market orientation in fact is important when technological turbulence is high, contrary to the presented arguments of the relative importance on keeping up with technology. When technological turbulence is high, technology is changing rapidly and technological developments provide opportunities and make new ideas possible to realize, but in order to make the right choices regarding technology and technological development efforts a market orientation may provide an important basis for such decisions.

In this study additional environmental factors were added to enable the investigation of the effects of a more complete picture of the environmental conditions. Although some of these factors identified from the industrial organization literature are previously hypothesized and empirically tested in one or a few market orientation studies, no evident attempt has been made of a systematic approach to identify a full set of environmental factors, or develop a typology of these factors for both research and practice. This study takes a first step towards the development of a typology of environmental factors, and the importance of such an effort is emphasized by the empirical evidence indicating that all environmental factors included in this study moderate the market orientation – performance relationship.

Also, the empirical setting for this study was selected for its heterogeneous environmental characteristics, as several previous studies reporting limited support for their hypotheses are criticized for the adequacy of their selected settings (e.g. Slater and Narver, 1994a). The reported empirical evidence supports this criticism and strongly supports the proposed moderating role of environmental conditions. Hence, rejecting these propositions would be taking a wrong turn as the findings of this study really stress the need for the attention of researchers to further investigate these propositions.

Slater and Narver (1994b) and Han et al. (1998) both argue that market orientation is likely to affect business performance through routes of intermediate factors, meaning that a successful market orientation creates effects such as innovation and product development, high-quality products and satisfied customers, and more efficient utilization of resources and abilities, which in turn result in greater performance effects. Sandvik and Sandvik (2003) and Kirca et al. (2005) adopt these arguments and, like Han et al. (1998), identify significant mediators of performance effects of market orientation.

The findings reported in Sections 5.3.2 and 5.3.3 strongly support these arguments and the hypothesized routes of effects are supported empirically. Market orientation contributes strongly to firms' rate of innovation and customer satisfaction, both of which affecting firms' operational efficiency. Operational efficiency makes a strong contribution to profitability, and the effects of market orientation are mediated through these factors. These findings indicate that limiting the scope of studies to the investigation of direct effects of market orientation on performance may be an inappropriate simplification of a complex relationship. Hence, other

potential intermediate factors performance effects of market orientation may be channeled through should be hypothesized and empirically tested.

I argue that, a firm's abilities to use market intelligence in their development of products and services, processes, and customer relations is an important issue left out from previous market orientation research and that the concept and its relation to market orientation should be investigated based on the two concepts being conceptually complementary and potentially supplementary in explaining performance. An exploratory approach was undertaken to investigate the role played by firms' capabilities for market oriented innovation in relation to market orientation. The results indicate that firm capabilities both interacts with market orientation in producing profitability outcomes and mediate indirect performance effects of market orientation. Hence, the concept of firm capabilities proves to play a significant role in relation to market orientation and its contribution to business performance, and further theory development should account for these effects.

The two research models developed and empirically tested in this study represent two different approaches to the refinement and investigation of the complexity of effects of market orientation. Although different, including both approaches in the same study provides an indication of the complementary importance and value added for both theory and practice as both models provide such convincing results. Also, adding the concept of firm capabilities to the discussion provides additional insights.

The empirical evidence presented in this study indicates that business performance effects of market orientation depend on (1) environmental factors, (2) the degree to which firms' market orientation contributes to innovation and quality, and (3) the capabilities of the firm to utilize market intelligence in the development of products and services, business processes, and customer relations. These findings could contribute to a renewed research interest for market orientation and its significance in producing superior financial performance, and a renewed research effort towards further developments of both the concept and the theory of market orientation.

## 6.2 Managerial implications

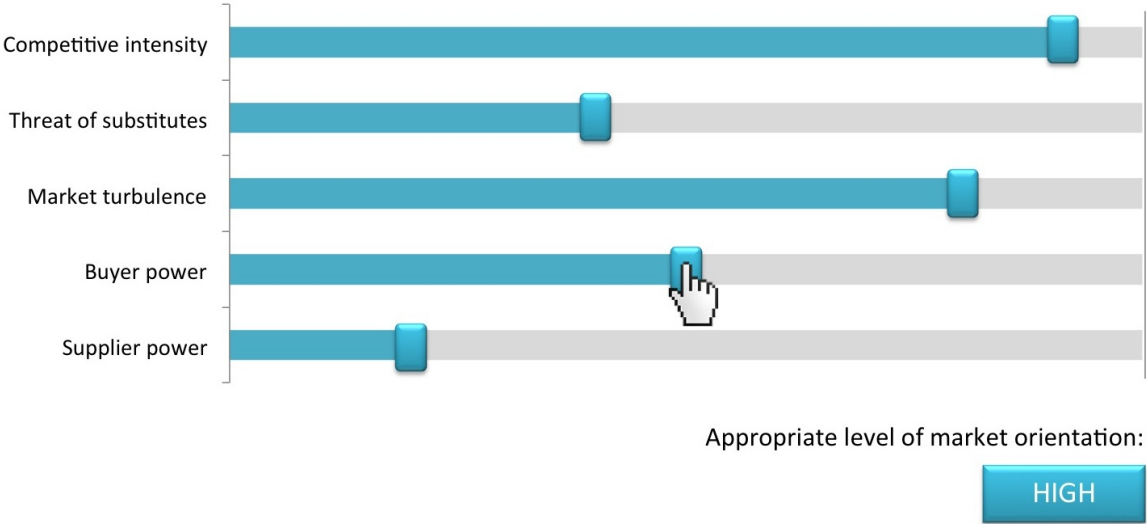
Market orientation is claimed to be a key to organizational success and superior performance (Kohli and Jaworski, 1990, 1993; Narver and Slater, 1990). The findings of this study support this statement and indicate that market orientation is important for businesses in general. The study has two major contributions representing implications for managers: First, the findings provide a strong indication that businesses that are able to adapt and develop their market orientation in line with the conditions in the business environment, and with their internal capabilities of market oriented innovation, are able to exploit the full potential of a market orientation and achieve superior financial performance. Second, the findings help to refine the order of the effects that ultimately results in corporate profitability, thereby providing a strong indication that it may be difficult to track the extent to which market orientation contributes to the profitability and that effects should be tracked and measured on other dimensions such as rate of innovation and customer satisfaction.

The business environment of any firm consists of competitors, customers, suppliers, and exogenous factors such as technology and regulatory factors. The dynamism of the environment varies greatly across industries, markets, and firms, and while some firms operate under stable circumstances characterized by low dynamism and uncertainty, others deal with extreme uncertainty and high velocity environmental changes. Regardless of these environmental characteristics, all firms depend on selling products to customers, indicating that no firm is likely to survive with zero market orientation and the positive contribution of market orientation to business performance appear to be robust across industry contexts in that sense (Jaworski and Kohli, 1993). However, as the results of this study indicate, firms operating under high degrees of environmental dynamism may not survive in the market place, and will certainly not be able to achieve superior performance, without a high level of market orientation. Hence, firms need to assess the dynamism in their environment when evaluating their need for a market orientation.

In order for managers to easily evaluate their firms' need for a market orientation based on environmental characteristics, the market orientation indicator was developed. This practical tool allows managers to create a profile of their environments, simply by adjusting the slide bars to the level of competitive intensity, threat of substitutes, market turbulence, and buyer and supplier power in their business environment. When all slide bars are adjusted to the

levels representing the firm’s environment, the market orientation indicator indicates whether the appropriate level of market orientation is low, medium or high. Please see Figure 6.1.

**FIGURE 6.1**  
**The Market Orientation Indicator illustration**



In its simplest form, the market orientation indicator calculates a multiplicative score for each environmental factor based on the level and the weight of that factor, and an additive total score which decides the indicated level of market orientation. The levels of each environmental factor is assessed using a scale from 0 to 10, and the weights of the factors are calculated based on the regression coefficients of the multiplicative interaction variables reported in Table 5.3.1. Total scores < 1.03 will produce an indication of LOW market orientation. Scores  $\geq 1.03$  and < 4.37 indicate MEDIUM level of market orientation and scores  $\geq 4.37$  indicate HIGH level of market orientation. Table 6.2.1 shows how the Market Orientation Indicator works based on the example illustrated in Figure 6.1.



**TABLE 6.2.1**  
**The Market Orientation Indicator illustration**

Environmental factor	St Beta	Weight	Level	Score
Competitive intensity	.175	22.5%	9	2.03
+ Threat of substitutes	.120	15.5%	4	.62
+ Market turbulence	.178	23 %	8	1.84
+ Buyer power	.126	16 %	5	.80
- Supplier power	-.182	23 %	2	.46
Total	.781	100 %		4.83
			LOW	[-2.3, 1.03>
			MEDIUM	[1.03, 4.37>
			HIGH	[4.37, 7.50]

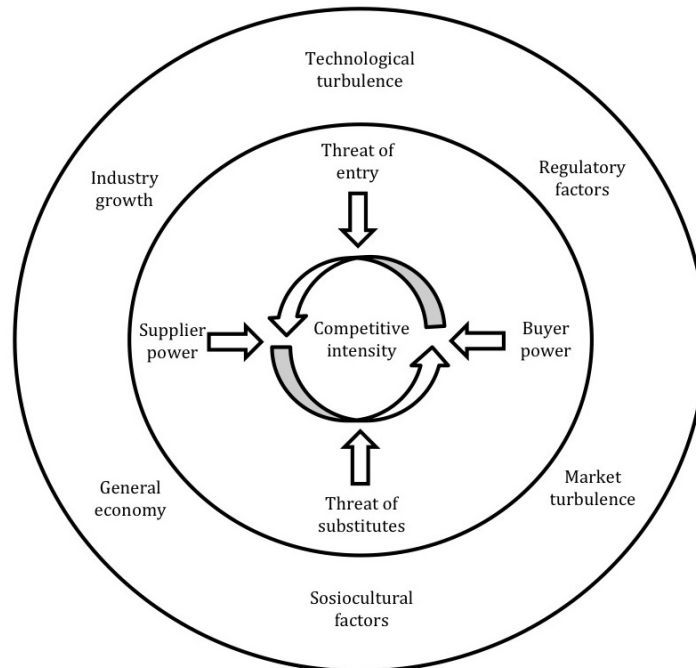
In addition to develop the appropriate level of market orientation based on the dynamism in the firm's environment, the development of a market orientation should be accompanied by the development of capabilities, skills and abilities to utilize market intelligence for innovation purposes. Market orientation appears to both contribute to the development of firm capabilities and interact with firm capabilities in producing performance outcomes, and the correspondence between a firm's market orientation and firm capabilities determine the amount of this effect. Managers should aim at developing corresponding levels of market orientation and capabilities for market oriented innovation as this combination will produce the greatest performance outcomes.

Further, the findings of this study indicate that a successful market orientation has consequences that eventually lead to financial performance and that a firm's objectives when developing a market orientation and firm capabilities should focus on the more directly manageable, measureable and more direct outcomes of market orientation, such as rate of innovation, customer satisfaction, and also operational efficiency. Market oriented firms should be able to measure the results of their market oriented activities in terms of greater rates of innovation and superior customer satisfaction of products and services. Additionally, a firm is likely to achieve even greater rate of innovation and customer satisfaction results because a market orientation also results in the development of firm capabilities, which in turn affect rate of innovation and customer satisfaction directly.

### **6.3 Limitations and future research**

The proposed moderating role of environment (Kohli and Jaworski, 1990) was expanded in this study by including environmental factors derived from industrial organization economics literature (i.e. Galbreath and Galvin, 2008; Porter, 1980) and developing a typology for identification and analysis of environmental factors. The typology defines two layers of environmental factors: task and general environment, and can be viewed as an extension of Porter's (1980) five forces of competition. However, the factors included in the preliminary framework may still not provide a complete image of a firm's environment. Hence, a further review of both marketing management and strategic management literature in order to identify all relevant factors would contribute to complete the environmental factor framework, and the further development of this practical tool for both managers and researcher. Relevant factors evident in the literature include general economy or economic factors (Daft et al., 1988; Kohli and Jaworski, 1990), market growth (Slater and Narver, 1994a) or the equivalent industry growth rate (Robinson and McDougall, 1998), regulatory factors (Daft et al., 1988), sociocultural factors (Daft et al., 1988) and national culture (Brettel, Engelen, Heinemann and Vadhanasindhu, 2008; Kirca, Cavusgil and Hult, 2009). These are all added to the advanced environmental typology illustrated in Figure 6.2, and future research should both contribute to complete this typology and investigate effects on the market orientation – business performance relationship.

**FIGURE 6.2**  
**Advanced typology of environmental factors**



Two more limitations regarding the moderating role of environmental factors should be addressed. First, these factors were only hypothesized to moderate the market orientation – profitability relationship. Potential moderating effect of environmental factors on the other consequences of market orientation and on the chain of effects found in the mediator model should be hypothesized and empirically tested. The general argument underlying the proposed moderating effects of environmental factors is that firms that are operating under certain environmental conditions need higher levels of market orientation. Based on this argument, firms should experience greater effects of their market orientation on other dimensions of performance, such as innovation and customer satisfaction.

Second, in this study each hypothesized environmental moderator was tested separately due to sample size issues. This limits the extent to which these effects are isolated from effects of other factors, and the extent to which any conclusion regarding the relative importance of each factor can be drawn. Both of these limitations point to the need for research testing all hypothesized moderators in a joint model.

Two research models were developed for the purpose of this study, and previous studies have either investigated the moderating effects of environmental factors or addressed potential mediators of indirect effects of market orientation on business performance. It is argued here that the two research models complement each other and should neither be viewed as competing nor unrelated, and the inclusion of both models in a single study emphasizes this point. However, these models should be hypothesized and empirically tested as one synthesized model for the purpose of further investigating the complementarity of the two approaches and to emphasize that they are both important pieces of the puzzle of how and to what extent market orientation leads to business performance. A synthesized model is developed as a framework for future research and this framework is displayed in Figure 6.3.

Market orientation and firm capabilities are regarded as two separate concepts in this study. The results indicate that firms' capabilities for market oriented innovation indeed do engage with firms' market orientation in producing business performance outcomes. However, as firm capabilities were found to both moderate and mediate effects of market orientation, a conclusion regarding the role of firm capabilities cannot be made. Although argued here to be conceptually distinct based on the definitions adopted from previous research, the similarities between these concepts and the ambiguous results indicate that these concepts are highly related and a further discussion of whether these are in fact distinct concepts or should be treated as one joint concept of market orientation is needed. To further investigate this issue of a potential expansion of the conceptualization of market orientation to include firm capabilities, several alternative market orientation indexes could be hypothesized. The three behavioral dimensions of the market orientation construct applied here are argued to be causally related as follows (Sandvik and Sandvik, 2003):

Generation → Dissemination → Responsiveness

Adding firms' innovative capabilities to the construct as a fourth dimension, the market orientation construct could be modeled:

a) Generation → Dissemination → Innovative capabilities → Responsiveness

b) Generation → Dissemination → Responsiveness

↑  
Innovative capabilities

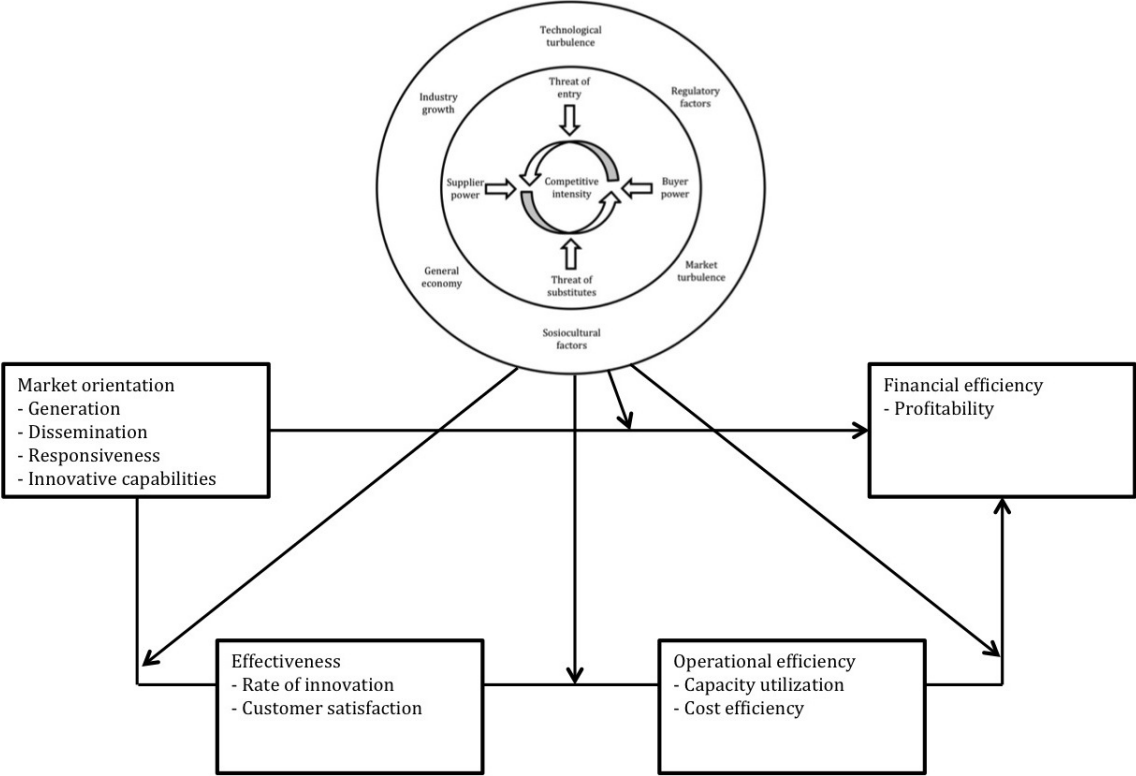
A third alternative could even be to replace the responsiveness dimension with a firm's innovative capabilities:

c) Generation → Dissemination → Innovative capabilities

The results from this study do not provide a basis for discussing or assessing these alternative models of the market orientation construct, and from a theoretical and conceptual perspective they all hold potentials for further insights.

Based on these limitations and shortcomings of this study, the framework for future research presented in Figure 6.3 is developed. In this synthesized model, market orientation is proposed to affect business performance both directly and indirectly, and environmental factors are proposed to moderate these effects. Additionally, firms' innovative capabilities are proposed to be included as a fourth dimension of the market orientation concept.

**FIGURE 6.3**  
**Framework for future research**



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## **APPENDIX A**

### **Questionnaire**

A joint questionnaire was developed for the purpose of this study and the study of fellow student Mia Helgesen whose study focuses on environmental scanning, and the full questionnaire is provided in this appendix. The structure of the questionnaire was developed based on a sequential order that would be perceived as logical for key informants. The questionnaire starts with the control variable stating the firm's core operation. The following eight sections include the measurement scale of environmental scanning, which is not applied in this study. The sections including items applied for the measurement of the concepts included in this study are marked with a green table heading.

The questionnaire was distributed to the firms within the sample frame twice, and the cover letters accompanying the survey are also enclosed.

Cover letter first inquiry:

Til daglig leder

Vi er to avgangsstudenter ved siviløkonomstudiet ved Høgskolen i Buskerud innen strategi og markedsføring. Vår undersøkelse omhandler IKT-bedrifiers analyser av eksterne omgivelser, behovet for slike analyser under ulike forhold, samt hvordan omgivelsesanalyser brukes i utviklingsarbeid og beslutningsprosesser.

Vi håper du har anledning til å sette av inntil 15 minutter på vegne av din bedrift. Din respons er viktig for gjennomføringen av studien, og for å oppnå resultater som både bransjen og den enkelte bedrift vil kunne ha stor nytte av. Det er ikke gjennomført lignende studier i norsk IKT-bransje tidligere, og behovet for denne typen kunnskap om bransjen er stort.

Spørreskjemaet finner du ved å følge denne linken: [SurveyLink]

Så hvorfor delta?

- Mulighet for å få tilsendt resultatene av studien
- Sammenligninger mot egen bedrift og økt kunnskap om praksis og forbedringspotensial i egen bedrift
- Styrke norsk forskning innen IKT
- Hjelp to masterstudenter med å lykkes med sine masteravhandlinger

Din besvarelse blir behandlet konfidensielt og knyttes ikke til din e-postadresse.

Spørsmål eller kommentarer kan rettes til Mia Ruud Helgesen på:

E-post: [Mia.Ruud.Helgesen@student.hibu.no](mailto:Mia.Ruud.Helgesen@student.hibu.no)

Mobil: 404 56 280

Med vennlig hilsen

Anette Myhre Momrak og Mia Ruud Helgesen



Cover letter second inquiry:

Til daglig leder

Vi viser til e-post sendt til din bedrift torsdag 23. februar 2012 og vil med dette minne om vår spørreundersøkelse om norske IKT-bedrifiers analyser av sine eksterne omgivelser. Denne påminnelsen sendes ut for å sikre høyest mulig svarprosent, og vi setter stor pris på om du har anledning til å sette av inntil 15 minutter og fullføre undersøkelsen på vegne av din bedrift.

Spørreskjemaet finner du ved å følge denne linken: [SurveyLink]

Dersom du ikke ønsker å delta, kan du se bort fra denne e-posten. Du vil ikke motta flere henvendelser fra oss.

Spørsmål eller kommentarer kan rettes til Mia Ruud Helgesen på:

E-post: [Mia.Ruud.Helgesen@student.hibu.no](mailto:Mia.Ruud.Helgesen@student.hibu.no)

Mobil: 404 56 280

Med vennlig hilsen

Anette Myhre Momrak og Mia Ruud Helgesen

## Information

Denne undersøkelsen omhandler norske IKT-bedrífers eksterne omgivelser, og deres praksis og vektlegging i analyser av disse.

Vær vennlig å besvare spørsmålene ut fra det første du tenker på og i et så jevnt tempo som mulig.

Undersøkelsen er estimert til å vare i ca 15 minutter.

## Kjernevirksomhet | Hva er bedriftens kjernevirksomhet?

♦ range:

Salg av tjenester/konsultenter	<input type="radio"/>	1
Salg av egenutviklet programvare/software utviklet i Norge	<input type="radio"/>	2
Salg av programvare/software utviklet i utlandet	<input type="radio"/>	3
Salg av maskinvare/hardware	<input type="radio"/>	4
Telekommunikasjon	<input type="radio"/>	5
	<input type="radio"/>	Open
Vi er ikke en IKT-bedrift	<input type="radio"/>	6

## OS\_KUNDE

Kunder

er de som kjøper produkter og tjenester produsert av din bedrift (kunder inkluderer bedrifter som kjøper dine produkter for videresalg så vel som sluttbrukerne og potensielle kunder).

"I svært stor grad" representerer her mye mer enn hva som er normalt i bransjen, mens "I svært liten grad" representerer mye mindre enn hva som er normalt i bransjen.

♦ range:\*

	I svært liten grad					I svært stor grad
	1	2	3	4	5	
I hvilken grad innhenter din bedrift informasjon om kunder?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I hvilken grad er informasjon om kunder av interesse for din bedrift?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I hvilken grad er informasjon om kunder viktig for din bedrift?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I hvilken grad analyserer og tolker dere informasjon om kunder?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I hvilken grad har informasjon om kunder bidratt til overordnede strategiske beslutninger og handlinger?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
I hvilken grad har informasjon om kunder bidratt til operative driftsrelaterte beslutninger og handlinger?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6

<b>OS_KONKURRENT</b>		Konkurrenter er de bedriftene og produktene som konkurrerer med din bedrifts produkter.				
♦ range:*						
		I svært liten grad			I svært stor grad	
		1	2	3	4	5
I hvilken grad innhenter din bedrift informasjon om konkurrenter?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I hvilken grad er informasjon om konkurrenter av interesse for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I hvilken grad er informasjon om konkurrenter viktig for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I hvilken grad analyserer og tolker dere informasjon om konkurrenter?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I hvilken grad har informasjon om konkurrenter bidratt til overordnede strategiske beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
I hvilken grad har informasjon om konkurrenter bidratt til operative driftsrelaterte beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6

<b>OS_TEKNOLOGISK</b>		Teknologiske omgivelser handler her om generell teknologisk utvikling i bransjen som er relevant for din bedrift. Eksempler på dette kan være utvikling av produksjonsteknikker og metoder, innovasjon i materiell, produkter og generelle trender i forskning og vitenskap.				
♦ range:*						
		I svært liten grad			I svært stor grad	
		1	2	3	4	5
I hvilken grad innhenter din bedrift informasjon om de teknologiske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I hvilken grad er informasjon om de teknologiske omgivelsene av interesse for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I hvilken grad er informasjon om de teknologiske omgivelsene viktig for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I hvilken grad analyserer og tolker dere informasjon om de teknologiske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I hvilken grad har informasjon om de teknologiske omgivelsene bidratt til overordnede strategiske beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
I hvilken grad har informasjon om de teknologiske omgivelsene bidratt til operative driftsrelaterte beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6

<b>OS_REGULATORISK</b>		De regulatoriske omgivelsene inkluderer statlig, fylkeskommunal og kommunal lovgivning, og regulering og prosesser.					
<b>♦ range:*</b>							
		I svært liten grad				I svært stor grad	
		1	2	3	4	5	
I hvilken grad innhenter din bedrift informasjon om de regulatoriske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I hvilken grad er informasjon om de regulatoriske omgivelsene av interesse for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I hvilken grad er informasjon om de regulatoriske omgivelsene viktig for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I hvilken grad analyserer og tolker dere informasjon om de regulatoriske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I hvilken grad har informasjon om de regulatoriske omgivelsene bidratt til overordnede strategiske beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
I hvilken grad informasjon om de regulatoriske omgivelsene bidratt til operative driftsrelaterte beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6

<b>OS_OKONOMISK</b>		De økonomiske omgivelsene inkluderer økonomiske faktorer som aksjemarked, inflasjonsrate, handelsbalanse, statlig, fylkeskommunale og kommunale budsjett, renter, arbeidsledighet og økonomisk vekstrate.					
<b>♦ range:*</b>							
		I svært liten grad				I svært stor grad	
		1	2	3	4	5	
I hvilken grad innhenter din bedrift informasjon om de økonomiske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
I hvilken grad er informasjon om de økonomiske omgivelsene av interesse for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
I hvilken grad er informasjon om de økonomiske omgivelsene viktig for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
I hvilken grad analyserer og tolker dere informasjon om de økonomiske omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I hvilken grad har informasjon om de økonomiske omgivelsene bidratt til overordnede strategiske beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
I hvilken grad har informasjon om de økonomiske omgivelsene bidratt til operative driftsrelaterte beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6

OS_SOSIOKULTURELL		De sosiokulturelle omgivelsene reflekterer sosiale og kulturelle verdier i befolkningen generelt, arbeidsetikk og demografiske trender.				
♦ range:*		I svært liten grad			I svært stor grad	
		1	2	3	4	5
I hvilken grad innhenter din bedrift informasjon om de sosiokulturelle omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 1
I hvilken grad er informasjon om de sosiokulturelle omgivelsene av interesse for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 2
I hvilken grad er informasjon om de sosiokulturelle omgivelsene viktig for din bedrift?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 3
I hvilken grad analyserer og tolker dere informasjon om de sosiokulturelle omgivelsene?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 4
I hvilken grad har informasjon om de sosiokulturelle omgivelsene bidratt til overordnede strategiske beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 5
I hvilken grad har informasjon om de sosiokulturelle omgivelsene bidratt til operative driftsrelaterte beslutninger og handlinger?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 6

OS_Generell						
♦ range:*		I svært liten grad			I svært stor grad	
		1	2	3	4	5
I hvor stor grad overvåker dere omgivelsene generelt, sammenlignet med deres viktigste konkurrenter?		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> 1

OS_Gradering		Gradér tiden dere benytter til å overvåke de følgende omgivelsene. Fordel 100 poeng. Om det er deler av omgivelsene dere ikke bruker noe tid på, sett disse til 0.				
♦ range:#100						
Kunder		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1
Konkurrenter		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	2
Teknologiske omgivelser		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	3
Økonomiske omgivelser		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	4
Regulatoriske omgivelser		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	5
Sosiokulturelle omgivelser		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	6





Environmental factors	Vurder hvorvidt påstandene under beskriver situasjonen i deres bransje.					
♦ range:*	Helt uenig	Uenig	Verken enig eller uenig	Enig	Helt enig	
	1	2	3	4	5	
Kundenes behov er i kontinuerlig utvikling i vår bransje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Kundenes krav når det kommer til våre produkter utvikler seg hele tiden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
Våre konkurrenter presenterer kontinuerlig nye produkter til markedet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
Våre konkurrenter utarbeider stadig nye salgsstrategier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
I vår bransje ser vi at kundenes behov og ønsker endrer seg ganske mye over tid.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
Kundene våre har en tendens til å være på utkikk etter nye produkter hele tiden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
Noen ganger er kundene våre svært prissensitive, mens andre ganger er pris relativt uviktig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
Vi opplever at produktene og tjenestene våre blir etterspurt av kunder som ikke har kjøpt dem før.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8
Nye kunder har ofte andre behov enn våre eksisterende kunder.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9
Vi leverer til mange av de samme kundene som vi har gjort i lang tid.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10
Konkurransen i vår bransje er veldig intens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	11
Det er intense "kampanjekriger" i bransjen vår.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	12
Alt en konkurrent kan tilby, kan andre også matche med letthet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	13
Priskonkurranse er et kjennetegn ved vår bransje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	14
Man hører om nye trekk fra konkurrenter nesten hver dag i vår bransje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	15
Konkurrentene er relativt svake.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	16
Teknologien i vår bransje endrer seg hele tiden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	17
Teknologiske endringer åpner store muligheter i vår bransje.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	18
Det er veldig vanskelig å forutse hvor teknologien i vår bransje vil være de neste 2-3 årene.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	19
Et stort antall nye produktideer har blitt gjort mulig gjennom teknologiske gjennombrudd i bransjen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	20
Den teknologiske utviklingen i vår bransje er ganske ubetydelig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	21
Det er veldig vanskelig for nye virksomheter å etablere seg i bransjen vår.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	22
Bransjen er i veldig stor grad truet av substitutter (produkter og tjenester som tilfredsstiller de samme behovene hos kundene).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	23
Våre kunder har stor grad av forhandlingsmakt (evne til å forhandle frem lavere pris og bedre betingelser) overfor vår virksomhet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	24
Vi har stor grad av forhandlingsmakt (evne til å forhandle frem lavere pris og bedre betingelser) overfor våre leverandører.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	25



<b>Okonomisk_ytelse_1</b> Sammenlignet med bedriftens viktigste konkurrenter, hvordan vil du vurdere følgende for de foregående tre-fem år?						
♦ range:*	Godt under gjennomsnittet			Godt over gjennomsnittet		
	1	2	3	4	5	
Bedriftens driftsmargin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Bedriftens resultatmargin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
Bedriftens omsetning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
Bedriftens kostnadseffektivitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
Bedriftens kapasitetsutnyttelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
Bedriftens kundetilfredshet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
Bedriftens produktivitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
Bedriftens innovasjonstakt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8

<b>Okonomisk_ytelse_2</b> Sammenlignet med bedriftens viktigste konkurrenter, hvilke forventninger har dere for 2012 når det gjelder:						
♦ range:*	Godt under gjennomsnittet			Godt over gjennomsnittet		
	1	2	3	4	5	
Bedriftens driftsmargin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
Bedriftens resultatmargin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
Bedriftens omsetning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3
Bedriftens kostnadseffektivitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4
Bedriftens kapasitetsutnyttelse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5
Bedriftens kundetilfredshet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6
Bedriftens produktivitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7
Bedriftens innovasjonstakt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8

<b>Organisasjonens_storrelse</b> Hvor mange ansatte er det i din bedrift (i Norge)?						
♦ range:*	0-19	20-49	50-99	100-249	Over 250	
	1	2	3	4	5	
Antall ansatte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1

<b>Hovedkontor</b> Hvor har bedriften sitt hovedkontor?	
♦ range:*	
I Norge	<input type="radio"/> 1
Utenfor Norge	<input type="radio"/> 2

**APPENDIX B**  
**Descriptive statistics items**

	Mean	Std. dev	Skewness	Kurtosis	N
<b>Market orientation</b>					
<i>Generation</i>					
MO_generation1	4.041	1.130	-1.255	.923	145
MO_generation2	3.255	1.235	-.387	-.683	145
MO_generation3	3.717	.984	-.780	.644	145
MO_generation4	2.993	1.382	.045	-1.230	145
MO_generation5	3.938	.981	-.905	.678	145
MO_generation6	3.234	.921	-.539	-.026	145
<i>Dissemination</i>					
MO_dissemination1	3.145	1.291	-.235	-.961	145
MO_dissemination2	3.283	1.273	-.363	-.814	145
MO_dissemination3	3.862	1.004	-1.053	1.205	145
MO_dissemination4	3.510	1.185	-.418	-.700	145
MO_dissemination5	3.869	.952	-.419	-.555	145
<i>Response</i>					
MO_response1	3.193	1.016	-.437	-.025	145
MO_response2	3.876	.897	-.514	-.138	145
MO_response3	3.869	.835	-.835	1.162	145
MO_response4	3.552	1.060	-.652	.147	145
MO_response5	3.310	1.176	-.341	-.645	145
MO_response6	3.262	1.000	-.210	-.073	145
MO_response7	3.159	1.300	-.126	-1.098	145
MO_response8	3.207	.865	-.089	.151	145
MO_response9	3.752	.983	-.862	.792	145
<b>Ordinary capabilities</b>					
Ordinary_capabilities1	3.993	1.007	-1.236	1.504	144
Ordinary_capabilities2	3.625	1.010	-.678	.225	144
Ordinary_capabilities3	3.715	.890	-.913	1.412	144
Ordinary_capabilities4	3.708	.884	-.684	.664	144
<b>Dynamic capabilities</b>					
Dynamic_capabilities1	3.979	1.014	-1.183	1.164	144
Dynamic_capabilities2	3.451	1.016	-.434	-.038	144
Dynamic_capabilities3	3.792	.930	-.787	.783	144
Dynamic_capabilities4	3.569	1.022	-.450	-.037	144
<b>Market turbulence</b>					
Market_turbulence1	3.650	.939	-.251	-.518	124
Market_turbulence2	3.056	1.038	.019	-.446	124
Market_turbulence3	3.653	1.020	-.658	.353	124
Market_turbulence4	3.403	1.035	-.474	-.112	124
Market_turbulence5	3.008	.906	-.016	-.276	124
Market_turbulence6	1.887	.989	1.202	1.382	124
<b>Competitive intensity</b>					
Comp_intensity1	3.274	1.031	-.031	-.437	124
Comp_intensity2	2.169	1.042	.531	-.342	124
Comp_intensity3	2.613	1.117	.139	-.795	124
Comp_intensity4	2.790	1.030	-.021	-.505	124
Comp_intensity5	2.258	1.011	.276	-.824	124
Comp_intensity6	3.250	.968	-.304	-.112	124

	Mean	Std. dev	Skewness	Kurtosis	N
<b>Technological turbulence</b>					
Tech_turbulence1	3.895	.935	-.575	.069	124
Tech_turbulence2	4.137	.931	-1.076	.996	124
Tech_turbulence3	3.282	1.094	-.129	-.706	124
Tech_turbulence4	3.694	.973	-.696	.382	124
Tech_turbulence5	4.185	.905	-.913	-.010	124
<b>Entry_barriers</b>	3.016	1.028	.013	-.340	124
<b>Substitutes</b>	2.669	.960	.037	-.341	124
<b>Buyer_power</b>	3.097	.869	-.190	-.219	124
<b>Supplier_power</b>	3.089	.856	.224	-.067	124
<b>Performance</b>					
Operating margin	3.418	1.225	-.383	-.792	122
Profit margin	3.336	1.302	-.306	-1.027	122
Cost efficiency	3.639	.954	-.262	-.320	122
Capacity utilization	3.566	1.004	-.183	-.612	122
Customer satisfaction	3.959	.807	-.405	-.330	122
Rate of innovation	3.631	.955	-.354	-.275	122
<b>Performance expected</b>					
Operating margin 2012	3.566	1.091	-.501	-.149	122
Profit margin 2012	3.582	1.074	-.521	-.168	122
Cost efficiency 2012	3.738	.916	-.632	.555	122
Capacity utilization 2012	3.787	.865	-.273	-.198	122
Customer satisfaction 2012	4.074	.883	-.658	.008	122
Rate of innovation 2012	3.689	.988	-.487	-.103	122

**APPENDIX C**  
**Bivariate correlations market orientation items**

		Intelligence generation					
		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Item 1	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	145					
Item 2	Pearson Correlation	.231	1				
	Sig. (2-tailed)	.005					
	N	145	145				
Item 3	Pearson Correlation	.398	.277	1			
	Sig. (2-tailed)	.000	.001				
	N	145	145	145			
Item 4	Pearson Correlation	.485	.363	.331	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	145	145	145	145		
Item 5	Pearson Correlation	.134	-.090	.255	.138	1	
	Sig. (2-tailed)	.108	.281	.002	.098		
	N	145	145	145	145	145	
Item 6	Pearson Correlation	.251	.320	.342	.269	.078	1
	Sig. (2-tailed)	.002	.000	.000	.001	.352	
	N	145	145	145	145	145	145

		Intelligence dissemination				
		Item 1	Item 2	Item 3	Item 4	Item 5
Item 1	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	145				
Item 2	Pearson Correlation	.664	1			
	Sig. (2-tailed)	.000				
	N	145	145			
Item 3	Pearson Correlation	.326	.443	1		
	Sig. (2-tailed)	.000	.000			
	N	145	145	145		
Item 4	Pearson Correlation	.428	.359	.515	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	145	145	145	145	
Item 5	Pearson Correlation	-.052	-.044	.264	.189	1
	Sig. (2-tailed)	.532	.602	.001	.023	
	N	145	145	145	145	145

