



Enabling Marketing and Innovative Capability in the Digital Economy

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*Thesis submitted in partial fulfilment of the requirements of the Business School of
Bournemouth University for the degree of Doctor of Philosophy*

October 2013

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Bournemouth University

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ABSTRACT

The present study examines the impact of marketing capabilities through a network perspective on innovative capabilities and firm performance. The market orientation and the resource-based view that underpin marketing capabilities have mainly treated marketing as internal capability of the firm. As firms are increasingly inter-connected and part of a business networks, a firm's marketing capabilities need to be examined beyond a single firm. But, to date, no study has yet examined a firm's marketing capabilities from a network perspective in order to understand their influence on innovative capabilities. Thus, this study extends the existing research and conceptualisation of marketing capabilities from an internal perspective of a firm to external network relationships of the firm. This network perspective is based on a firm's view of its network relationships, which accounts for inter-firm relationships, as well as through digital technology and learning orientation. With the advent of the Internet and information technology, this study conceptualises digital technology as an enabler of the relationship between marketing capability and innovative capability. Since capabilities evolve to become routines and/or deteriorate over time, a firm's learning orientation is also conceptualised for examining the extent to which capabilities impact on innovative capabilities.

A survey data of 300 UK-based firms were analysed using statistical analysis to examine the influence of marketing capabilities on innovative capabilities and in turn, firm performance. In addition, interaction analyses were performed to test for mediating and moderating relationships of digital technology and learning orientation. Findings of the analysis show strong support for product development capability; marketing implementation capability; pricing capability. The results support the relative impact of marketing capabilities on innovative capabilities. While marketing capabilities may comprise interdependent capabilities, this finding suggests that firms can enhance innovative capabilities by emphasizing the salient marketing capabilities. Importantly, digital technology has a significant and positive mediating relationship for the relationship between marketing capabilities and innovative capabilities. This finding indicates that knowledge of the application of information technology would facilitate exploitation and exploration of marketing capabilities that enhance innovative capabilities. As indicated by the positive moderation of learning orientation for the relationship between marketing capabilities and innovative capability, the potential to harness marketing capabilities is better enhanced through learning orientation and digital technology. This new perspective of marketing capability analysis benefits from a firm's network perspective that recognises a firm's external relationships and inter-connected nature of business interactions. In this instance, digital technology extends the boundary of firm beyond a single firm, and learning orientation complements market orientation with learning and gathering of external market information.

This research advances knowledge about specific types of marketing capabilities for improving innovative capability and firm performance through digital technology capability. The study also makes a significant contribution to building theoretical knowledge of the role of digital technology in enabling innovative capabilities by developing and empirically testing a new construct of digital technology. As the ability to mobilise digital technology is firm-specific, this study extends knowledge about the extent of learning orientation (moderator) to the marketing capabilities and innovative capabilities relationship through digital technology.

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Acknowledgements

I would like to express my sincere gratitude to my supervisors Dr. Yasmin Sekhon, Dr. Julie Robson and my previous supervisor Prof. Teck Yong Eng for their encouragement, assistance and guidance in advising and bringing this thesis to completion.

I would like to thank my examiners Dr. John Rudd and Professor Philip Hardwick and my viva chair Dr. Donald Nordberg for giving me the honour by being my Ph.D. committee. I am grateful for their encouraging and constructive feedback.

I would like to show my appreciation to Bournemouth University particularly in the award of a Postgraduate Research Studentship that provided the financial support for this research. I would like to thank Denise George for her help and support.

My parents receive my deepest gratitude and love for everything they have done for me.

Finally, I would like to thank my guardian angel for supporting me and encouraging every decision of mine.

CHAPTER 1

Introduction

1.1 Overview and Motivation

As today's markets become more globalised and competitive, firms are under increasing pressure to develop organisational capabilities particularly those associated with marketing and innovation. In recent years, there have been growing interests in how firms enhance their performance through innovation and knowledge about marketing capabilities. For example, Vorhies and Morgan (2005) have identified a set of interdependent marketing capabilities that impact on business performance. In a study of manufacturing firms, Eng and Spickett-Jones (2009) note that manufacturing firms should focus on product development and marketing communications capabilities to enhance growth success and business performance. Marketing capabilities build-on established empirical evidence of market orientation and resource-based view for improving firm profitability and generating innovation. It is not surprising that some studies have examined marketing capabilities as part of market orientation (e.g., Hunt and Morgan 1995; Zhou et al. 2005) or as one of the components of strategic orientation in terms of capability development (Gatignon and Xuereb 1997). Prior research has also linked market orientation to new product performance and firm innovativeness (e.g., Calatone et al. 2002; Atuahene-Gima

1995). Thus, knowledge about specific marketing capabilities is important for firms to develop innovative capabilities and enhance firm performance.

While there have been studies on the relationship between marketing capabilities and firm performance as well as market orientation and innovation performance, there are at least two critical research questions remain unanswered in the marketing literature. The first is what types of marketing capabilities enhance innovative capabilities and firm performance in relation to external firm or network relationships. The second is under what conditions marketing capabilities would be affected in terms of the extent of impact on innovative capabilities and firm performance. Specifically, the first question recognises that today's business organisations operate in a network context and hence the development of marketing capabilities may rely on a firm's network relationships. Such network characteristics of a firm's relationships are also exacerbated by the rapid advancement of digital technology and market dynamism. For instance, it is possible for firms to exchange and share information through the Internet and/or information technology. Since acquisition of technology alone would not be sufficient for firms to achieve above normal returns and/or generate innovation, it has been shown that firms with high levels of learning orientation would make the most of their capability. On the one hand, a firm that mobilises relevant marketing capabilities thorough its digital technology would facilitate innovative capability development. On the other hand, the relationship of digital technology with marketing capabilities and innovative capabilities performance would depend on learning orientation of the firm. Thus, this

study argues that through these complementary concerns firms would be able to enhance innovative capabilities and ultimately firm performance.

1.2. Research Rationale

Market orientation and resource-based view as theoretical underpinnings of marketing capabilities have been predominantly examined as internal capability of the firm. For example, market orientation is concerned with marketing activities and subsequent implications for decision-making based behavioural and cultural aspects of an organisation (e.g., Elg 2002). The resource-based view has been widely criticised for its sole focus on internal resources and capabilities as sources for developing sustainable competitive advantage (e.g., Porter 1990). By and large the criticisms of market orientation and resource-based view have been gaining prominence through empirical evidence that business organisations are enmeshed in networks of relationships (e.g., Ford et al. 1994; Moller and Halinen 1990). This network perspective recognises that a firm's actions and behaviours generate network effects on members of a certain network (e.g., Eng 2005a & b). In other words, a firm's marketing capability is not confined to internal capabilities but could be the result of a firm's interaction with external firms in the network. In addition, the advent of the Internet and information technology is increasing the relevance of a network perspective through today's highly inter-connected markets and sophisticated customers in the information and digital era.

As a result of the networked nature of firms' marketing capabilities, this study extends existing research and conceptualisation of marketing capabilities from internal perspective of a firm to external network relationships of the firm. This network perspective is based on a firm's view of its network relationships, which accounts for inter-firm relationships. Since networks have been conceptualised and examined through different schools of thought and/or perspectives, it is appropriate to note that the network perspective of this study is concerned with an actor, in this case, a firm's perspective of its network relationships, which is multiple, individual or inter-connected relationships. This network perspective of inter-firm relationships could redress the imbalance of focus on internal aspects of a firm (e.g., resources, culture) to network effects based on a firm's actions as well as perceived outcomes from inter-firm collaboration or competition. The rationale is that a firm's strategic decisions and subsequent managerial actions are part of its understanding and knowledge about networks of relationships connected to the firm. This notion of network relationships is consistent with the research traditions of the European International Marketing and Purchasing (IMP) Group that considers a business network as multiple independent businesses that have an interdependent relationship without hierarchical control (Anderson et al. 1994). Prior research has also adopted this business network perspective for examining network relationships (e.g., Anderson et al. 1980; Moller and Halinen 1990; Eng 2005a; Eng 2008; Mei and Nie 2008).

Given the pace of information technology advancement in accelerating network phenomenon, it would be important and relevant to consider digital technology as a mediator for the relationship between marketing capabilities and

innovative capabilities. The present study treats digital technology as an enabler of a firm's network perspective of marketing capabilities. This recognises that marketing capabilities may be mobilised through digital technology. By analysing the potential of digital technology in enabling innovative capabilities, this research incorporates the pervasive role of digital technology in the way organisations conduct their business. While firms may enhance the relationship of marketing capabilities and innovative capabilities through digital technology, firms would have different abilities in the application and/or mobilisation of digital technology. Research about management core competence has identified and examined the concept of absorptive capacity (Cohen and Levinthal 1990, 1994) for explaining managerial abilities, and learning orientation for understanding the influence of a firm's learning behaviour (Baker and Sinkula 1999). As such, this research conceptualises learning orientation as a moderator of the relationship marketing capabilities and innovative capabilities, which in turn impact on firm performance.

1.3. Research Objectives

This study has three inter-related objectives (1) to examine what marketing capabilities enhance firm innovative capabilities; (2) to extend the analysis of marketing capabilities from internal development to a firm's external network relationships and (3) to understand how digital technology serves as an enabler between marketing capabilities and innovative capabilities. These objectives have been derived from the above literature gaps based on theoretical underpinnings of

market orientation, resource-based view and network perspective of the IMP group researchers. Specifically, this study investigates the following research questions:

- What marketing capabilities firms develop in business relationships for enhancing innovation?
- What is the relationship between specific marketing capabilities and innovative capabilities?
- What is the relationship between innovative capabilities and firm performance through the development of marketing capabilities?
- What is the extent of digital technology in influencing the relationship between marketing capabilities and innovative capabilities?
- What is the extent of learning orientation in influencing innovative capabilities through marketing capabilities?

1.4. Theoretical Framework

As the preceding sections suggest, this research draws on three main theories (market orientation, resource-based view and network perspective) for examining the impact of marketing capabilities on innovative capabilities. Market orientation is one of the most extensively investigated constructs in the marketing literature. There is ample empirical evidence of the importance of marketing orientation for customer satisfaction and firm performance. Two common approaches used in examining market orientation as (1) part of an organisation-wide activity of gathering, analysis and dissemination of data to gain market responsiveness (Kohli and Jaworski 1990);

and (2) part of an organization culture through the focus on customer orientation, competitor orientation and inter-functional orientation (Slater and Narver 1990). As a result of the positive impact of market orientation on profitability and business performance, some scholars have started to examine marketing capabilities in order to leverage firm performance through specific types of marketing capabilities.

The notion of conceptualising marketing as a capability can be traced to the resource-based view theory of the firm (Wernerfelt 1988; Peteraf 1993). This theory argues that resources including both tangible and intangible assets that are unique, rare, inimitable and non-tradeable are sources for the development of sustainable competitive advantage (Barney, 1989). In particular, intangible resources such as goodwill and brand name are not easily transferable and difficult for firms to imitate, and therefore they provide better explanation for sustainability of competitive advantage than competitive advantage based on industry structure and positioning (e.g., Porter 1980). Recent studies on resource-based view have focused on capabilities as the ability to integrate organisational resources and reconfigure them to respond to changes in the environment (Teece et al. 1997). This notion of resource-based capabilities recognises that organisational capabilities consist of routines and dynamic capabilities whereby the later are concerned with an organisation's ability to react and respond to environmental changes, which provide the basis for explaining the dynamic nature of competitive advantage (Schreyögg and Kliesch-Eberl 2007). Thus, marketing capabilities consist of different marketing activities residing inside and outside the firm in and through business network relationships.

Following the business network perspective of the IMP group, this research examines a firm's network relationships based on its knowledge of external relationships connected to the firm. Since there are numerous research traditions on networks, it is important to note that the IMP group business network perspective mainly focuses on relationship management in and through relationships (Hakansson and Snehota 1993). This perspective differs from the North American group of scholars examining networks mainly based on structural properties of networks and strategic networks. Within the IMP group of scholars, there are different research streams on networks such as business dyad relations, network embeddedness, customer portfolios and levels of business relationships. The common thread of these different research streams is the use of a focal relationship (e.g., a buyer/supplier's perspective of its dyad relations or network relations) as the unit of analysis and basis for analysing relationships. This is influenced by the early IMP research findings of the Interaction Approach (Hakansson 1980), which provides the foundation for conceptualising network relationships beyond two parties or a dyad relationship. The notion of examining network relationships based on a firm's perspective is consistent with concepts of network identity and network horizon (Anderson et al. 1994; Eng 2008). The former recognises each network context is different from the firm perspective, which could render network capabilities through differences within each network. Network horizon is related to network identity, that a firm's network of relationships is bound by its own knowledge and hence, different actors hold different views about relevance of their network relationships. Thus, to capture network effects of marketing capabilities on innovative capabilities, a firm's

view of its network relationships provides the basis for relating the identified marketing capabilities to the firm.

1.5. Literature Gaps

While the literature has documented empirical evidence of the significance of market orientation for firm performance and the development for marketing capabilities to improve growth and business performance, current research on marketing capability can be considered relatively new or under-developed. In terms of marketing capability construct specification and empirical validation, few studies have examined relevance of specific eight types of marketing capabilities (pricing, product development, channel management, marketing communications, selling, market information management, market planning and marketing implementation) to business performance (Vorhies and Harker, 2000 and Eng and Spickett-Jones, 2009).

In addition, marketing capabilities have only been examined as capabilities internal to the firm or independent of a firm's knowledge of network relationships. Yet the marketing and strategic management literature is replete with empirical evidence about the potential of network relationships for firms to enhance innovation and/or improve business opportunities (e.g., Hakansson et al. 1999; Walter et al. 2005; Wucherer 2006). By extending marketing capabilities analysis from a firm's knowledge about internal resources to its knowledge of external marketing capabilities in and through connected network relationships, this research fills a gap

in the literature. As businesses become increasingly inter-connected in terms of interdependence of their resource allocation decision and strategic action, a network perspective reflects current business practice and the prevalence of digital technology in enhancing business performance (e.g., online services and websites).

Digital technologies, which include internet-based communication tools and interactive technological capabilities, are also contributing to the network phenomenon. There is growing recognition of the importance of digital technology for the ability of firms to achieve competitive advantage and generate innovation (Vecchi and Bennan 2008). Most studies about digital technology have focused on the use of digital technology in business (e.g., Kiani 1998; Urban and Hauser 1993) rather than how digital technology serves to enhance organisational capabilities such as marketing capabilities. This gap in the literature can be addressed by conceptualising digital technology as a mediator for the relationship between marketing capabilities and innovative capabilities. Prior research has neglected this potential mediating relationship, which is specific to the ability of an individual firm and dynamism of its business environment. A firm with a lower learning orientation is weak in market flexibility and less adaptive (Baker and Sinkula, 1999) in order to be informed about the changes in customer's needs and create new knowledge, a firm requires a higher level of learning orientation (Slater and Narver, 2005). Thus, learning orientation has been conceptualised as moderator for the relationship between a firm's marketing capabilities and its innovative capabilities.

1.6. Research Contribution

1.6.1. Theoretical contribution

The present study has several theoretical contributions. This research advances knowledge about eight marketing capabilities (pricing, product development, channel management, marketing communications, selling, market information management, market planning and marketing implementation) for improving innovative capabilities through digital technology. Within the resource capability literature, this study extends the resource-based theory to the marketing field by ensuring that construct specification focuses on capability analysis. This approach not only links marketing capabilities to innovative capabilities but also adds to the extant approach of analysing market orientation as a capability under the overarching framework of the resource-based view. A major theoretical contribution of this study is the recognition that while firms' marketing capabilities are sets of interdependent organisational capabilities, certain marketing capabilities are more salient in enhancing innovative capabilities and they are part of internal as well as external capabilities mobilised through networks of relationships. The study also makes a significant contribution to building theoretical knowledge of the role of digital technology in enabling innovative capabilities by developing and empirically testing a new construct of digital technology. As the ability to mobilise digital technology is firm-specific, this study extends knowledge about the extent of learning orientation (moderator) to the marketing-innovative capability relationship through digital

technology. Altogether, these theoretical contributions advance methodological insights in terms of validating measures of marketing capabilities based on a firm's perspective of its network relationships and advancing new measures of the digital technology providing the basis for further research.

1.6.2. Managerial Implications

Research on innovative capability based on specific marketing capabilities through digital technology can help managers to make better informed decisions concerning the allocation of scarce marketing resources and investment in key aspects of digital technology. Since capability development can have a direct impact on innovation and technological advantages elapse rapidly, the research framework can guide managers to more effectively develop marketing capabilities in the firm as well as through external network relationships. Moreover, this network perspective of developing marketing capabilities provides the potential for firms to leverage valuable resources through network relationships. This is not only effective in terms of resource investment but also responsive to competitive and market demands. For example, firms may form strategic alliances to combine complementary capabilities to enhance their competitiveness and take advantage of market demands.

As the study of innovative capabilities is relevant for any organisation, the empirical findings deepen managerial understanding about the use and relevance of digital technology under conditions of the extent of learning orientation and rate of

changes in the marketplace. In particular, small firms can use the research framework to develop relevant marketing capabilities that exploit both network relationships and aspects of digital technology to enhance innovation as well as to compete with large firms. Also, small firms constrained by small scale operations would be able to compete more effectively by applying relevant marketing capabilities and digital technologies. Marketing managers can benefit from the empirical findings regarding the strategic aspect of marketing management. The evidence from this study strengthens the critical role marketing plays in strategic management and organisational behaviour as regards innovation, capability development and learning orientation.

1.7. Research Methodology

A positivism-deductive research approach was chosen for this research. In the light of the research objectives and the literature, survey strategy was the most suitable to obtain the data. As the research objectives suggest, this research has been conducted using a quantitative research design and approach to generalise the findings based on statistical analysis of the findings. Since this study deals with innovative capabilities and the use of digital technology that can be applied to business organisations across different industry sectors, the sample of population of this study is drawn from different industries in the UK economy including profit organisations. This increases generality of the findings as well as avoid potential bias of informed wisdom about the relevance of marketing capabilities in specific industries. Although industry

characteristics may determine choice of different marketing capabilities, the empirical findings of this study can be categorised into different industries following the precedent of past studies (e.g., Brouthers, Brouthers and Werner, 2002; Henisz, 2004). In addition, the interest in general population of business alleviates the difficulty of obtaining a satisfactory sample size for statistical analysis in survey research. A random sampling of all the population from the Dun and Bradstreet Business Directory has been performed in order to generate an adequate response.

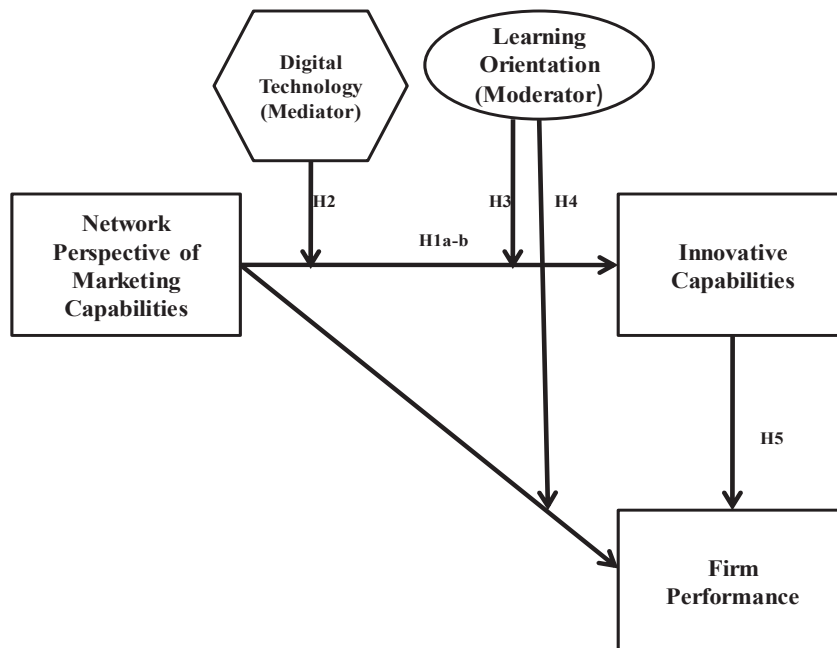
The field research of this study consists of three sub-stages. The first involved a mail survey and pilot interviews of respondents to examine the face validity of the measurement items as well as appropriateness and clarity of the research questionnaire. The feedback obtained from this stage allowed the research to refine and/or adapt the measurement items and questions better capture the respondent/firm's perspective of marketing capabilities through its network relationships. The third stage carried out a full-scale empirical survey of 1200 business organisations in the UK. In order to purify the measures to be used in hypotheses testing, several techniques were used. First reliability and exploratory factor analysis were undertaken using SPSS (version 17.0). This resulted in the deletion of items when cross-loadings or weak loadings were identified. This research applied statistical modelling of the hypothesized relationships using SPSS (version 17.0). Regression analysis was used to investigate the research hypotheses. SPSS was used in data analysis rather than Structural Equation Modelling. As the study has many constructs, the model did not fit. In SEM, cause-and-effect

relationships used in the analysis can be subjective and calculations of probabilities may be purely coincidental.

1.8. Conceptual Model

An overview of the conceptual framework of this study is depicted in Figure 1.1. It can be seen that the present study examines the impact of marketing capabilities using network perspective on innovative capabilities and ultimately, on firm performance. As argued above, the relationship between marketing capabilities and innovative capabilities is mediated by digital technology. In addition, the hypothesized relationship is moderated by learning orientation. Further details of the conceptual framework with specific marketing capabilities and relevant hypothesized relationships will be explained in the next chapter.

Figure 1.1: The Overview of the Conceptual Framework



1.9. Thesis Organisation

Chapter One provides an overview of theoretical underpinnings of this research, literature gaps, its objectives and conceptual model, contribution and methodology of the research. Chapter Two focuses on theories and extant empirical studies about marketing capabilities and innovative capability in order to review and define specific gaps and hypotheses for the research. This includes definition of all variables of interest in the conceptual model and prior empirical findings. Chapter Three details the research context, research design and research instrument. This chapter explains measurement scales and items of the conceptual model, and the

development of the research questionnaire. Chapter Four focuses on the data analysis, which includes explanation statistical techniques and generation of statistical measures for the data. This chapter applies statistical techniques to explain unidimensionality, convergent validity and discriminant validity for the results of the study. Chapter Five discusses the main research findings, results as regards theoretical, managerial and research implications. Finally, Chapter Six concludes by highlighting research contribution to theory and practice, research limitations and future research agenda.

CHAPTER 2

Literature Review

2.1 Introduction

Marketing capabilities have so far been examined from a firm's possession of internal capabilities (resources). Despite the competitive advantage generated through exchange and interaction in networks, studies have mainly examined marketing capabilities internally and/or through single firms (e.g., Merrilees et al. 2011; Ripolles and Blesa 2012). The study of organisational capabilities can be traced to the resource-based view theory of the firm (Penrose 1959; Wernerfelt 1984). Since the present study focuses on marketing capabilities through a network perspective, the significance and relevance of marketing capabilities for innovative capabilities and firm performance are examined by building on insights from market orientation (Narver and Slater 1990) and the resource-based view of dynamic capabilities (Day 1994; Fang and Zou 2009). This section includes a review of main concepts of the resource-based view and market orientation underpinning marketing capabilities. In doing so, this chapter examines previous studies on marketing capabilities and relevant gaps in the literature that set the stage for empirical research of this study.

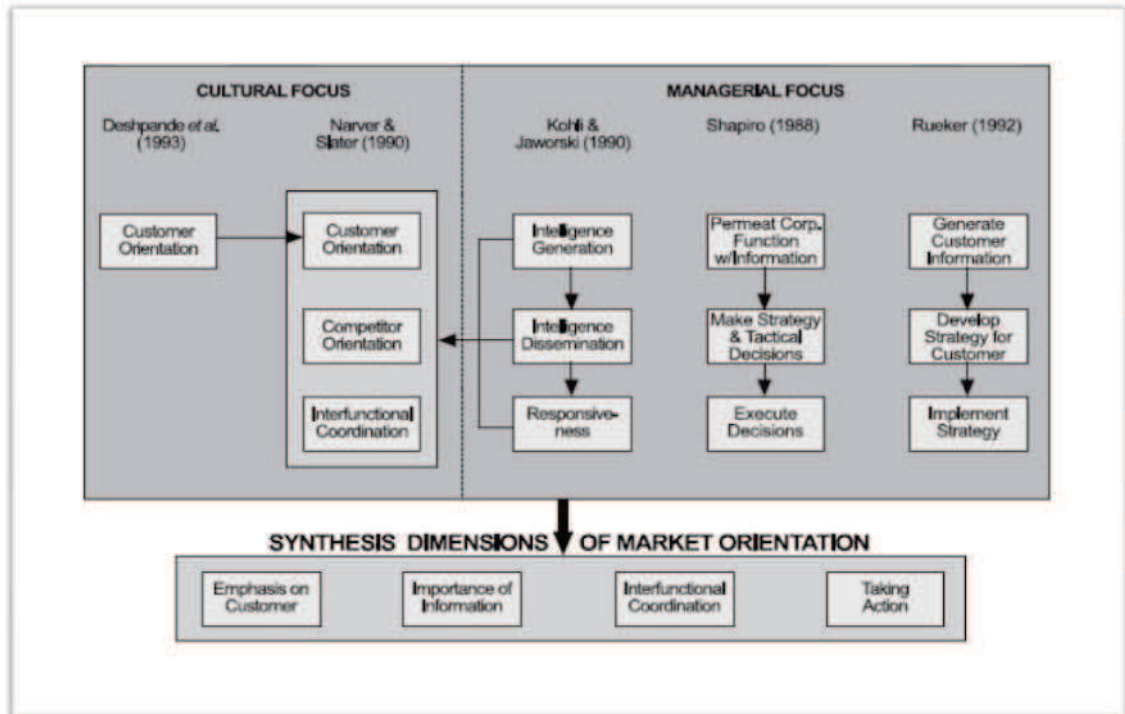
2.2 Marketing Capabilities: Literature Review

2.2.1 Underpinning Theories of Marketing Capabilities

2.2.1.1 Market Orientation (MO)

Market orientation has been examined internally as a firm-level concept in the literature (Desphande et al. 1993; Narver and Slater 1990; Kohli and Jaworski 1990; Shapiro 1988 and Rueker 1992). In the marketing literature, researchers have mainly examined market orientation as a set of specific behaviours and activities (Kohli and Jaworski 1990), a resource (Hunt and Morgan 1995), a basis for decision making (Shapiro, 1988), or an aspect of organizational culture (Day 1994; Deshpande et al. 1993; Slater and Narver 1995). Figure 2.1 provides a typical illustration of such different approaches to understanding a firm's market orientation.

Figure 2.1: Market Orientation of Firm Level Concept



(Lafferty and Hult 2001)

Market orientation can be categorised into three main perspectives (1) behavioural perspective, (2) cultural perspective of market orientation and (3) multilayered market orientation (Homburg and Pflesser 2000). The behavioural perspective of market orientation examines the organisational activities that are related to the generation, dissemination of and responsiveness to market intelligence (Kohli and Jaworski 1990). However, the cultural perspective of market orientation defines market orientation as "the culture that (1) places the highest priority on the profitable creation and maintenance of superior customer value while considering the interests of other stakeholders; and (2) provides norms for behaviour regarding the organizational development and responsiveness to market information"(Slater and

Narver 1995, p. 67). Homburg and Pflesser (2000) indentified four different layers of organisational culture to express multi-layered market orientation, which are value, norms, artifacts, and behaviour.

This study is based on behavioural perspective of market orientation (Jaworski and Kohli 1990) because consistent with conceptualisation of the study on the importance of information gathering and intelligence as well as the behavioural perspective is more applicable to inter-firm relationships than single firms (Elg 2007; Homburg and Pflesser 2000).

Behavioural Perspective of Market Orientation

The behavioural perspective of market orientation examines the organisational activities that are related to the generation and dissemination of market intelligence, and responsiveness to changes in the marketplace (Kohli and Jaworski 1990). Kohli and Jaworski (1990) define market orientation as “composed of three sets of activities: (1) organisation-wide generation of market intelligence pertaining to current and future customer needs, (2) dissemination of the intelligence across departments, and (3) organisation- wide responsiveness to it” (Hurley and Hult 1998, p.43).

This study focuses on a firm’s perspective of its network relationships which could include more than two parties of connected relationships to the firm. It illustrates *intelligence generation (G)*, which involves a firm’s perspective of its

network of relationships carrying out activities together that provide knowledge about their customers, secondly *intelligence dissemination (D)* of customer data from this interconnected relationships, in order to understand the customer's needs. And lastly, *collective responsiveness (R)* takes place when firms coordinate their activities internally and externally to respond better to the consumer's needs and wants (Elg 2002).

The two most extensively researched perspectives are behavioural component of GDR of Kohli and Jaworski (1990) and cultural components of Narver and Slater (1990). What these studies have generally revealed is the positive impact of MO on firm performance/profitability. Thus, researchers attempt to identify MO as capability through market-based assets (Hooley et al. 1999). Research efforts have been dedicated to the relationship between market orientation and business performance (Narver and Slater 1990; Jaworski and Kohli 1993; Slater and Narver 1994a; Atuahene-Gima 1995, 1996; Han et al. 1998; Hurley and Hult 1998; Matsuno and Mentzer 2000; Hult and Ketchen 2001). Scholars have argued that firms should seek to identify latent needs to innovate, develop opportunities, and find new means of delivering value beyond merely espousing the values associated with market orientation (Hooley et al. 1999). The study of Narver and Slater (1990) provides an empirical support for the positive relationship between market orientation and business performance. Especially, in order to get information and interaction that will lead firms to gain competitive advantage, in the new digital economy market oriented firms need to be proactive towards their customers' needs instead of simply reacting to their needs (Narver and Slater, 1990).

The predominant view supported by several researchers is that market orientation is positively associated with performance (Jaworski and Kohli 1993; Slater and Narver 1994a). According to Narver and Slater (1990), market orientation comprises customer orientation, competitor orientation, and inter-functional coordination. A meta-analytic study by Kirca et al. (2005) of market orientation research has offered a consolidated view of market orientation. Studies have indeed concluded that market orientation provides a firm with market sensing and customer linking capabilities that lead to superior organisational performance (Day 1994a; Hult and Ketchen 2001).

In terms of the customer related benefits, market orientation has been found to enhance customer satisfaction and loyalty because market-oriented firms are well positioned to anticipate customer needs and to offer goods and services to satisfy those needs (Slater and Narver 1994b).

Despite the predominant view of market orientation, some research points to non- significant or even negative effects of market orientation on the relationship with business performance (Bhuian 1997; Agarwal et al. 2003; Sandvik and Sandvik 2003). The negative effects of market orientation have been shown in companies who listen too much to their customers, invest aggressively in technology and provide more products according to stated customer needs (Christensen 1997).

2.1.1.2 Resource-Based View (RBV)

The resource-based view theory of the firm can be traced to the seminal works by Penrose (1959) and Wernerfelt (1984). This theory switched the focus from industry structure, strategy groups and external competitive dynamics to the particular collection of tangible and intangible resources of the company (Pettigrew et al. 2002). Penrose's study (1959), on the theory of the growth of the firm, provides arguably the most detailed exposition of a resource-based view in the economics literature. The idea of marketing capabilities can be linked to the resource-based view. Marketing capabilities can be treated as the integrative process, which a firm uses its tangible and intangible resources to understand complex consumer specific needs, achieve product differentiation relative to competition, and achieve superior brand equity (Day 1994; Dutta et al. 1999; Song, Benedetto et al. 2007; Song, Droge et al. 2005). Prior research on marketing capabilities has drawn on the resource-based view as the basis for developing marketing capabilities when a firm combines individual skills and knowledge of its employees along with the available resources (Vorhies and Morgan 2005; Nath et al. 2010).

The resource-based view introduces a conception of firms as heterogeneous accumulations of resources and seeks to explain differences in performance by individual firms in terms of their distinctive resource endowments (Sanchez and Heene 1997). Pitts and Lei (2006, p. 234) identify resource-based view of the firm as “an evolving set of strategic management ideas that place considerable emphasis on the firm's ability to distinguish itself from its rivals by means of investing in hard-to-

imitate and specific resources (for example, technologies, skills, capabilities, assets, management approaches)". A firm may derive its sources of competitive advantage from its resources and capabilities. "Organizational competencies and resources which are distinctive or superior to those of rivals may become the basis for competitive advantage if they are matched appropriately to environmental opportunities" (Peteraf 1993, p.179). The resource-based view theory argues that the resources of a firm should meet the following criteria: they should add value, be unique, and not being easily imitated. By meeting these characteristics, the resources will enhance the power of the firm and increase the possibility of gaining and sustaining competitive advantage (Griffith and Harvey 2001). Its influence in recent marketing contributions can be seen, for example, in Day's (1994) work on marketing capabilities, in the work of Hunt and Morgan (1995; 1996) on competitive advantage and in Zhou et al. (2008) work which is build on the resource based view (RBV) and examines how it affects firm performance using a cross level approach.

Different resource sets have been used in the literature to explain the concept of resource-based view. The resource-based view includes expressions such as "core competencies" based on intangible assets developed by Prahalad and Hamel (1990); Itami's "invisible assets" (1987); and firm's position that can be assisted by distinctive capabilities (Kay 1993).

Tangible assets refer to the fixed and current assets of the organisation that have a fixed long run capacity (Wernerfelt 1984). Intangible assets include

intellectual property such as trademarks and patents as well as brand and company reputation, company networks and databases (Hall 1992; Williams 1992). Capabilities are often described as invisible assets (Itami 1987) or intermediate goods (Amit and Schoemaker 1993). Capabilities provide firms the ability to take full advantage of individuals' skills as well as organisations' advantages and interactions (Grant 2001). Furthermore when capabilities are interaction-based, they are even more difficult to duplicate due to causal ambiguity.

The RBV literature supports those capabilities are key sources for competitive advantage (Collis 1994; Fahy and Smithee 1999). Grant (2001) argues that understanding the relationships between resources, capabilities, competitive advantage and profitability is essential for firms. It is critical for a firm to enhance knowledge on how to sustain the competitive advantage. As such, a key task for the firm is to identify those resources, assets and capabilities that will provide a strong competitive advantage. It can be seen that the resource-based view is complemented by competence-based and knowledge-based theories (Hamel and Prahalad 1994; Pettigrew et al. 2002). Table 2.1 summarizes a classification the firm's resource bundle based on tangible assets, intangible assets and capabilities (Fahy and Smithee 1999). Clearly, more recent research has examined different types of organisational capabilities and dynamic capabilities (e.g., Drnevich and Kriauciunas 2010; Molloy et al. 2011). Prior research has also linked RBV capabilities to new product development and innovation (e.g., Puranam et al. 2006).

Table 2.1: A Classification of the Firm’s Resource Pool

THE FIRM’S RESOURCE BUNDLE			
Author	Tangible Assets	Intangible Assets	Capabilities
Wernerfelt (1984)	Fixed Assets	Blueprints	Cultures
Hall (1992)		Intangible Assets	Intangible Capabilities
Hall (1993)		Assets	Competencies
Prahalad and Hamel (1990)		Core Competencies	
Itami (1987)			Invisible Assets
Amit and Schoemaker (1993)			Intermediate Goods
Selznick (1957); Hitt and Ireland (1985); Hofer and Schendel (1978)			Distinctive Competencies
Kay (1993)			Distinctive Capabilities

(Adapted from Fahy and Smithee 1999)

2.2.2 Marketing Capabilities

Marketing capabilities build-on established empirical evidence of market orientation and resource-based view for improving firm profitability and generating innovation.

It is not surprising that some studies have examined marketing capabilities as part of market orientation (e.g., Hunt and Morgan 1995; Zhou et al. 2005). According to Day (1994 cited in Weerawardena 2003, p.19) marketing capabilities are defined as

“integrative processes designed to apply the collective knowledge, skills, and resources of the firm to the market-related needs of the business, enabling the business to add value to its goods and services and meet competitive demands”. Tooksoon and Mohamad (2008) describe marketing capabilities as the capabilities that are concerned with the needs and changes in a market environment. Dutta et al. (1999) state when a firm is able to identify customers’ needs and recognize the factors that influence customers’ choices and behaviours, then the firm has strong .marketing capabilities.

Kotabe et al. (2002) argue that marketing capabilities of a firm is reflected by its ability to commercialise products and services into the market, offer superior customer value, strongly compete with rivals and build successful brands. Similarly, researchers such as Day (1994) and Hooley et al. (1999) support that marketing capabilities play an important factor in the successful commercialisation of a company’s products and services. Research efforts have been dedicated to the relationship between marketing capabilities and firm performance (Narver and Slater 1990; Hooley et al. 1999; Moore 2003; Bharadwaj 2000). Research results by Fahy (2000) indicate that firms can achieve a competitive advantage and improve firm performance when firms have marketing capabilities (Katsikeas et al. 1996; Tsai and Shih 2004, Tooksoon and Mohamad 2008). This stream of research supports that the development of superior marketing capabilities underpins efficient and effective business strategies that can lead to competitive advantage and better performance (Day 1994; Day and Wensley 1988; Kohli and Jaworski 1990 and Narver and Slater 1990). Since it is crucial for organisations to be able to generate competitive

advantage, scholars have argued that firms should seek to identify latent needs and find new means of developing marketing capabilities which should be unique, add value to the firm, not easy for the rivals to copy them and not easy to be replaced (Barney 2002; Grant 2001).

The types of marketing capabilities and their relationship with business performance have received particular attention in recent research. Day (1994) has identified three types of market-driven capabilities: outside-in, inside-out, and spanning capabilities. Outside-in capabilities are the capabilities that relate a firm's skills and competences to the external environment and they contribute to a firm's competitiveness. These capabilities include the market-sensing capabilities, customer-linking, channel bonding and technology monitoring. Day (1994) has argued that market-driven organisations have superior market-sensing, customer-linking and channel bonding capabilities. Inside-out capabilities are the capabilities that focus on a firm's internal resources, and they are formed according to the market requirements, competitive challenges and external opportunities. These capabilities include financial management, cost control, technology development, integrated logistics, manufacturing processes, HRM, and environmental health and safety. Spanning capabilities are the capabilities that are used to connect the outside-in to the inside-out capabilities. These capabilities include strategy development, new product/service development, price setting, purchasing and customer activities that must be informed by both outside-in and inside-out analyses.

Following the line of Day's (1994) study, Hooley et al. (1999 cited in Aakouk 2006) support Day's (1994) study and note that these marketing capabilities have a positive impact on market-based advantage. In addition to Day's (1994) marketing capabilities, researches (Cravens and Piercy 1994; Hooley et al. 2004 cited in Cadogan et al. 2002) have added one more capability which is network capability that they argue its importance for competitive advantage. This capability is related to the relationships, commitment and trust build between partners. Hooley et al.'s (2004) strategic marketing capabilities are close related to the Day's (1994) marketing capabilities. They categorise the capabilities as strategic capabilities (which includes market-sensing), functional capabilities (which includes customer relationship management and innovation capacity) and operational capabilities (which includes the implementation capabilities). Day (2011) expands this view of strategic marketing capabilities by broadening the inherent limitation of the four Ps of tactical marketing to capturing the capabilities for creating customer value (Day and Moorman 2010). This includes four elements of strategic perspective of marketing capabilities: customer value leader, innovation of new value for customers, the customer as an asset, and the brand as an asset (see: Day, 2011). Merrilees et al. (2011) conceptualise marketing capabilities as higher order construct encompassing innovation and branding, and find a strong relationship between marketing capabilities and SME performance. Innovativeness has also been associated positively with market orientation (Atuahene-Gima 1996; Han et al. 1998). However, the capability of most organisations to cope with the accelerating complexity of markets and the rapid changes of technology is under strained (Day 2011). This is mainly due to the advent of the Internet and the shrinking cost of

communication through digital technology. Day (2011, p. 183) contends that the challenge for firms and marketers is to seize the opportunity for advantage out of the confusion created by accelerating market complexity. Since these elements require the integration of capabilities such as with customers and channels, the ability of the firm to exploit digital technology would influence innovative capabilities and firm performance. Thus, it is important to consider the role of digital technology and its influence on firm performance

Katsikeas (1994 cited in Tooksoon and Mohamad 2008) have examined four capabilities (production capability, marketing and promotion capability, product superiority and competitive pricing) in a firm's marketing competency. Vorhies and Harkies's (2000) study has investigated six marketing areas of capabilities (marketing research, pricing, product development, channels of distribution, promotion, and marketing management area). Narver and Slater (1990) have argued that the marketing capabilities of a firm include the handling of product adaptation in different international markets, controlling marketing activities, differentiating the product, and being extremely effective in pricing, distribution, advertising and promotions. Weerawardena's (2003) study took Atuahene-Gima's (1993) research of marketing capabilities a step further. He has identified eight marketing capabilities (customer service, the effectiveness of promotional activities in gaining market share and sales, growth, quality of sales people, the strength of distribution networks, the extent of resources, firm's marketing research, the ability to differentiate products, and the speed of product introduction) that enhance a company's processes:

Vorhies and Morgan (2005) identify eight marketing capabilities which contribute to business performance. Eng and Spickett- Jones (2009, p.469) define these capabilities as: (1) *pricing*, the ability to extract the optimal revenue from the firm's customers (e.g., Dutta et al. 1999) (2) *product development*, the processes by which firms develop and manage product and service offerings (e.g., Dutta et al., 1999); (3) *channel management*, the firm's ability to establish and maintain channels of distribution that effectively and efficiently deliver value to end customers (e.g., Weitz and Jap 1995); (4) *marketing communications*, the firm's ability to manage customer value perceptions (e.g., McKee, 1992); (5) *selling*, the processes by which the firm acquires customer orders (e.g., Shapiro, 2001) (6) *market information management*, the processes by which firms learn about their markets and use market knowledge (Day 1994; Menon and Varadarajan 1992); (7) *marketing planning*, the firm's ability to conceive marketing strategies that optimise the match between the firm's resources and its marketplace (Morgan et al. 2002); and (8) *marketing implementation*, the processes by which intended marketing strategy is transformed into realised resource deployments (e.g., Noble and Mokwa 1999).

Following this line of studies, this study investigates eight marketing capabilities (pricing, product development, channel management, marketing communications, selling, market information management, marketing planning and marketing implementation) that were derived from Vorhies and Morgan's (2005) synthesis of the marketing literature regarding the contribution of marketing capabilities to business performance. These eight marketing capabilities are chosen because of prior empirical evidence (Eng and Spickett-Jones 2009; Vorhies and

Morgan 2005) and they show their relative explanatory power for business performance and their interdependence as part of overall marketing and organisational capability. Eng and Spickett-Jones (2009) noted that manufacturing firms should focus on product development and marketing communications capabilities in order to enhance business performance. In the study of Vorhies and Morgan (2005) individual marketing capabilities such as selling, marketing planning and selling showed significant positive effect on business performance. empirical evidence on marketing capabilities has noted interdependence of collective marketing capabilities and their salient individual impact on business performance, these individual marketing capabilities were chosen in order to examine the impact on innovative capabilities and firm performance.

2.2.3 Development of Marketing Capabilities

Vorhies and Harker (2000) provide convincing empirical evidence that there is positive relationship between learning processes and marketing capabilities process. The concept of marketing capabilities has been under attack by marketing and management scholars since empirical evidence indicates resource-based view enhance competitive advantage (Fahy et al. 2000). Since marketing capabilities are developed via learning processes and the way these learning processes are integrated, development of marketing capabilities would depend on learning orientation (Calantone et al., 2002). The employees repeatedly use their knowledge and skills,

which are considered as the knowledge-based resources in the literature, in addition with the tangible resources, in order to find solutions, complete marketing tasks and create valuable outputs. Research effort to date has achieved some degree of consensus regarding employees' knowledge that can be both adaptive and generative (Day 1994; Slater and Narver 1995). With the purpose of achieving and completing successfully marketing tasks, marketing employees are forming coordinated patterns of behaviours, which can be adapted to the changes of a firm's needs (Grant 1991 cited in Vorhies and Harker 2000).

Previous studies focus on marketing capabilities that tend to vary in response to competitive market, the dependence on the industry and future of the firm (Day 1994). Also in a competitive environment, the way in which employees develop their knowledge in order to meet customers' expectations is unique; therefore, marketing capabilities across businesses tend to be similar but not identical (Fahy 2000). This generates an advantage for firms, since marketing capabilities cannot be easily imitated; it becomes an important component of gaining competitive advantage (Grant 1996 cited in Vorhies and Harker 2000). A study by Vorhies (1998 cited in Weerawardena 2003), who has given significant attention to the marketing capabilities, has found that factors that influence the development of marketing capabilities are company's business strategy, organisational structure and market information-processing capability. Similarly, the consensus regarding development of marketing capabilities are supported by Narver and Slater (1990) who have argued that marketing capabilities are developed as a result of firm's marketing oriented business strategy.

“Rizzoni(1991 cited in Lee 2010) argues that marketing capabilities is crucial for new product development since the information about customer needs and competitors need to be considered in the steps of new product development)” (Lee 2010,p.421). Several studies have shown that marketing capabilities influence innovation positively (Calantone et al. 1993; Atuahene – Gima 1995 cited in Lee 2010). However, no empirical research yet identified on marketing capabilities based on firm’s view of network relationships and their influence on innovative capabilities.

Cadogan et al.’s (2002) cross-cultural study has measured the marketing capabilities in service industries by comparing the UK and New Zealand. The study has aimed to extend the Hooley’s model on marketing capabilities. The study found that both countries consider they have an advantage in customer relationship management capability; they also show advantage on human resource management and the operations management. In their research, spanning capabilities and networking capabilities were considered as less important for service industries in the U.K and New Zealand. In the research, similarities or differences between countries in assets and capabilities, and market conditions or resource endowments were not considered. But the study has not reviewed all the marketing activities that this study focuses on.

Weerawardena’s (2003) study has examined the role of marketing capabilities in innovation based competitive strategy. The research has investigated

manufacturing firms in a single regional area. The findings have shown that the marketing capabilities influence both the innovation intensity and competitive advantage of firms. Even though, this study examined the importance of marketing capabilities in innovation based strategy, it did not examine the innovative capabilities. Tooksoon and Mohamad (2008) have conducted an exploratory study where they linked marketing capabilities to export performance in the context of exporting firms in Thailand. The results have illustrated that the marketing capabilities that rank higher is the product capability and secondary capabilities are the channel capability, pricing capability and promotion capability. The limitations of the study are that they examined only four marketing capabilities in agro-based firms in Thailand.

Aakouk et al. (2004) have examined which direct marketing capabilities are important for a firm's performance. They developed a conceptual model that measures the degree to which direct marketing capabilities are significant factors on firm performance. The model of direct marketing capabilities includes customer-driven capabilities, customer-linking capabilities, information technology capabilities and human resources capabilities. They have conducted the study on 843 technical wholesalers in Netherlands. The results have shown that direct marketing infrastructure plays an important role and positively influences direct marketing intangibles. Also, firm's performance is positively affected by direct marketing infrastructure and human direct marketing. On the other hand, direct marketing intangibles are not influenced by direct marketing human skills.

Vorhies and Harker (2000) have examined which marketing capabilities support a market driven approach and what are the implications for firms that develop a market driven approach. They have conducted data from 400 manufacturing and service firms. The findings have supported that market driven business units develop higher level of six marketing capabilities than the less market driven competitors. These capabilities outperform the less market driven firms on four measures of organisational performance. The cross-sectional data that has resulted from the study could not be used empirically to establish association in the relationships examined or to examine the sustainability dimension of competitive advantage. The results could not evaluate differences between firms in the level and quality of resource inputs, and the level of other types of capabilities (e.g. R&D).

Dutta et al.'s (1999) study is based on the resource-based view of the firm and suggests a conceptual framework in order to clarify the differences in firm's profitability in high-technology markets according to their functional capabilities. The findings show that firms should focus on marketing in order to increase awareness on the technological efforts of the firm. Also, marketing capabilities contribute positively to innovative output on firms that have strong technological foundation and they enhance firms' ability to generate innovative technologies. They also find that marketing and R&D are the most significant components on a firm's performance.

Fahy et al. (2000) have investigated the impact and the development of marketing capabilities in central Europe. The study examined strategic capabilities,

and showed findings on the importance of marketing capabilities in a firm's future wealth on the region. It has found that the firms with foreign participation have been able to develop a more sophisticated level of marketing capabilities. They have also found that these marketing capabilities have a positive impact on financial and market performance.

Day (1994) has examined the role of capabilities in creating a market driven organisation. He has investigated the relationship between a firm's capabilities and its strategy and how these can be applied and developed in designing a firm's programs and enhancing market orientation. He identified three types of capabilities: outside-in, inside-out and spanning capabilities. He argued that market sensing and customer linking capabilities are very important for creating customer value and guide internal processes in order for a firm to cope with changes in the market environment and build effective customer relationships. However, Day's (1994) seminal article is based theoretical and conceptual arguments.

Studies have been dedicated to the relationship between marketing capabilities and firm performance (Cadogan et al. 2002; Day 1994; Weerawardena 2003; Vorhies and Harker 2000). Table 2.2 below summarizes some of previous studies on marketing capabilities.

Table 2.2: Previous Studies on Marketing Capabilities

No	Authors	Research Question(s)	Theory	Method/Sample	Measures	Major Findings
1	Ripolles and Blesa (2012)	How marketing capabilities contribute to the international expansion of international new ventures and influence their choice of entry mode.	Resource-based view	A survey 135 Spanish international new ventures	Cadogan et als' (2002) measures and Day's (1994) typology.	This study shows that marketing capabilities help international new ventures to use entry modes involving higher resource commitment in international markets.
2	Day (2011)	To narrow the widening gap between the accelerating complexity of markets and the capacity of marketing organisations to respond to the marketplace.	Market orientation Dynamic capabilities, and exploration and exploitation concepts	N/A conceptual paper based on dynamic capabilities and market orientation	Conceptualizing static to dynamic capabilities based on adaptive capabilities	Day (2011) proposes that firms need three adaptive capabilities to respond to the accelerating complexity of the market: vigilant market learning, adaptive market experimentation and open marketing.
3	Merrilees, Rundle-Thiele and Lye (2011)	The contribution of innovation and branding marketing capabilities to SME performance.	Market orientation and resource-based view	A survey 367 SME Australian firms	Marketing capabilities include branding capability (Wong and Merrilees 2008), and innovation capability (Hooley et al. 2005)	Innovation as part of marketing capabilities is a major determinant of marketing performance
4	Nath, Nachiappan and Ramanathan (2010)	Impact of a firm's mc, operational capabilities, and diversification strategies on fp.	Resource-based view	102 logistics firms, data envelopment analysis (DEA)	Marketing capabilities (Vorhies and Morgan 2005)	They show support for the effect of marketing dynamic capabilities on international joint venture, competitive advantage and performance.

5	Fang and Zou (2009)	They conceptualised and operationalized dynamic marketing capabilities.	Resource-based view	A survey of 126 pair responses of international joint ventures	Marketing dynamic capability (a measure developed for the study)	They find the support for the effect of marketing dynamic capabilities on international joint venture (IJV), competitive advantage and performance.
6	Tooksoon Mohamad 2008	Marketing capabilities and Export performance: Evidence from Thai agro-based firms	Marketing Capability, Export Performance, Thai's Exporters,	The data was collected using highly structured survey questionnaire and was addressed to top management.	4 Marketing capabilities variables were measured by 18 items adapted from (Guan & Ma, 2003; Kim-soon, 2004). Export Performance: non economic/economic	The findings show that the product capability is ranked higher and is followed by channel capability, pricing capability, and promotion capability respectively. This paper represents findings on the perceived marketing capabilities among agro-based exporting firms in Thailand.
7	Lin and Smyrniou 2005	Business Orientation, Marketing capabilities and Firm performance: Fast 100 versus top 500 companies	Market, Learning and entrepreneurial Orientation Fast Growth Firms Marketing capabilities Firm Performance	Semi structures Interviews with 100 CEOs and Top 500 marketing managers/CEOs	Case study and Causal Network model paradigms	Running a successful business entails having a CEO with leadership skill to grow an organisation, the ability to empower employees, and to maintain sound relationships with stakeholders Empowering employees to make their own decisions and feel valued is essential for internal marketing.

8	Aakouk, Hoesktra and Zwart 2004	Direct Marketing Capabilities and Firm Performance: An Empirical Investigation	Direct Marketing Capabilities Firm Performance	843 Technical wholesalers in the Netherland.	Standard regression analysis Sobel's classical method of mediation analysis (introduce bootstrap to investigate mediation)	<p>The proposed direct and indirect effects model has good psychometric properties.</p> <p>The degree of DM intangibles, DM infrastructure and human DM skills has a significant strong positive effect on business performance.</p> <p>DM infrastructure has an indirect affect on business performance.</p>
9	Weerawardena 2003	The role of marketing capabilities on innovation intensity and sustained competitive advantage.	Marketing capabilities Organisational innovation Sustained competitive advantage	1,272 manufacturing firms in a regional area	<p>Entrepreneurial activity (Namen and Slevin 1993)</p> <p>Marketing capabilities (Atuahene-Gima 1993)</p> <p>Organisational innovation intensity.Sustained competitive advantage</p>	<p>Entrepreneurial activity is an important determinant of the marketing capabilities, providing support for the capability theory of sustained competitive advantage. Entrepreneurial firms pursue organisational innovation. Entrepreneurial firms undertake both technological and non-technological innovation and both types lead toSCA. Marketing capabilities enables firms to gained sustained CA.</p>

No	Authors	Research Question(s)	Theory	Method/Sample	Measures	Major Findings
10	Cadogan, Douglas, Matear and Greenley 2002	Measuring Marketing Capabilities: A cross national Study	Marketing Capabilities Measures of Marketing Capabilities Cross-national study	After qualitative research with marketing managers, A questionnaire used 24 items to capture Day's (1994) three capabilities concepts. 485 UK marketing managers and 472 in New Zealand	Exploratory Factor Analysis Multi-group Confirmatory Factor Analysis	The findings show cross-nationally valid measures of marketing capabilities can be developed for service industries in the U.K and New Zealand. In both countries, firms were most likely to consider that they had an advantage in customer relationship management, human resource management and operations management. Spanning capabilities and networking capabilities were less important than the first two capabilities.
11	Vorhies and Harker 1999;2000	What set of marketing capabilities support a market-driven approach What are the performance implications for firms that develop a market-driven approach	Market-driven firms Marketing capabilities Performance effects	400 large manufacturing and service firms with Australian operations Questionnaires followed by interviews with marketing managers	Business strategy (22 items: Dess and Davis, 1984) Market orientation (31 items: Jaworski and Kohli, 1993) Marketing capabilities (6 areas) Organisational performance (4 indicators: Venkatraman, 1989)	Market-driven firms demonstrated much higher levels of customer focus and relationship focus. Market-driven firms have more positive associations with marketing capabilities than less market-driven. Strategically-focused market-driven firms outperformed their competitors

No	Authors	Research Question(s)	Theory	Method/Sample	Measures	Major Findings
12	Dutta, Narasimhan and Rajiv 1999	Success in High-Technology Markets: Is Marketing capabilities Critical?	Marketing, R&D and Operations Capabilities Performance in High Technology markets	Manufacturing 92 focal firms whose primary business in semi-conductors	Resource based perspective SFE Methodology (stochastic frontier estimation)	<p>The importance of prior stock of know-how (TECHBASE) in influencing sales.</p> <p>Marketing capabilities has its greatest impact of marketing on the quality-adjusted output firms which have strong technological base.</p> <p>One of the most productive sources of ideas for innovation is the result of marketing activity. Firms need to excel: the ability to come up with innovation and the ability to commercialize these innovations into the products that capture consumer needs and preferences.</p>
13	Day 1994	Examining the role of capabilities in creating a market-driven organisation	Capabilities TQM			<p>Two capabilities are important for the creation of market-driven firms: market sensing capability and customers-linking capability.</p> <p>These capabilities must be combined with TQM</p> <p>Market sensing, customer linking, channel bonding cannot be nurtured without attention to values, beliefs, behaviours of members in the organisation and changes in structure, system, control</p>

2.2.4 Gaps

Marketing capabilities have been examined from firm's possession of internal capabilities (resources) for many years. However, the present study contributes to the literature by focusing on a firm's network perspective of its marketing capabilities.

This study is not concerned with explicating networks and their structural properties (Lacobucci and Hopkins 1992). This study focuses on a firm's network perspective which is a firm's strategic decisions and subsequent managerial actions which are part of its understanding and knowledge of networks relationships connected to the firm. Today's business organisations operate in a network context and hence, the development of marketing capabilities may rely on a firm's network relationships. Network characteristics of a firm's relationships are also exacerbated by the rapid of digital technology and market dynamism. These are interesting perspectives that should be beneficial to address in terms of digital technology as an enabler of marketing capabilities from a firm's view of network perspective and their impact on innovative capabilities. With the increasing globalization of markets, companies are unavoidably enmeshed with customers, competitors and suppliers. Since customers become more demanding and multi-cultural and the continuous increase of firm capabilities, firms need to differentiate their marketing capabilities by focusing on network perspective. It seems logical that firms with superior external inter-firm relationships may be better able to exploit their internal capabilities to enhance their innovative capabilities and firm performance. This

approach has not received any attention. This study makes a contribution to marketing and network research by focusing focal firm capabilities in explaining a firm's network perspective of its marketing capabilities using digital networks.

2.2.5 Summary

This section provides a review of the development of marketing capabilities. It has discussed analytically the main theories that will be examined for meeting the aim of the study and also presented the gaps in the literature that exists, which reflect contributions of this research. Resource based view is focusing on a set of resources that contribute to firm's competitive advantage. The market orientation construct includes techniques to assess customer and market environments that enable firms to enhance financial performance as well as satisfy customer needs.

Learning about customers' needs and market's changes enable firms to achieve competitive edge. Marketing capabilities, which are the main focus of this study, involve collective knowledge, skills and resources of the firm to the market-related needs in order to be able to meet market demands. When they are superior they are considered to offer effective business strategies and better performance. Advancements in digital technology influence all the function in a firm and cannot be overlooked. Firms that have paid attention on the digital technology are likely to achieve innovation. Therefore, it is important to investigate mediating effect of

digital technology on marketing capabilities from a network perspective of the firm and in the process for enhancing innovative capabilities and firm performance.

2.3. Network Perspective: Literature Review

2.3.1 Introduction

Since the aim of this research is to examine the marketing capabilities from the network perspective and their impact on innovative capabilities. It is appropriate first to clarify what network perspective is and why it is important. As mentioned in previous section, marketing capabilities have been documented in the literature for many years and these capabilities examined at the firm level focus primarily on capabilities that have been developed singularly or unilaterally from the firm perspective.

The study is concerned with a firm's strategic decisions and subsequent managerial actions which are part of its understanding and knowledge of networks relationships connected to the firm. This notion of network relationships is consistent with the research traditions of the European International and Marketing Purchasing (IMP) Group that considers a business network as interdependent relationships based on mutual interests (Anderson et al. 1994). Prior research has also adopted this business network perspective for examining network relationships (e.g., Anderson et al. 1980, Moller and Hallinen 1999; Eng 2005a; Eng 2008).

In a globalised world, this conception of the firm level capabilities will be more appropriately examined from network perspective which reflects interconnected relationships of different organisations and multilateral decision making. Added to this, the rapid advancement of digital technology and Information Communication technology has increased the relevance of a firm's networks of relationships in capability development. In this sense, digital technology can be viewed as an enabler of a firm's network perspective of marketing capabilities. Thus, a firm's network perspective of marketing capabilities can determine the extent of innovative capabilities and firm performance.

2.3.2 A network perspective on business networks

Although the resource-based view has provided explanation for differential firm performance, its internal focus on firm resources and capabilities may overlook the significance of capability development through a firm's network relationships (Porter 1990; Lavie 2006). Moreover, research on interfirm relationships in business markets has highlighted the influence of relationship development on firm performance (e.g., Anderson and Narus 1990; Anderson and Weitz 1989; Dwyer et al. 1987; Frazier 1983; Hallen et al. 1991). As an extension of the early research of European marketing scholars largely associated with the International Marketing and Purchasing group (IMP) (e.g., Ford 1990; Hakansson 1987; Mattsson 1987), the focus on a firm's immediate (focal) relationships has shifted beyond two parties or networks of relationships. This network perspective of a firm's marketing capabilities can provide a more complete picture of marketing capabilities by

focusing on a firm's knowledge of external marketing capabilities in and through connected network relationships.

A business network can be defined as a set of two or more connected business relationships, where exchange in one of them is contingent upon exchange in the other relation (or non-exchange in the other relation) (Cook and Emerson 1978, p. 81). Similarly, Eng (2005) and Hakansson and Johanson (1993) define business networks as sets of connected relationships between firms. According to Astley and Fombrun (1983) and Miles and Snow (1992) business networks are a sets of connected relationships between firms. Researchers have paid significant attention to network perspective and network relationships. They argue that in order for a firm to achieve an effective performance its relationships with other actors should be improved (Håkansson and Snehota 1995). In this sense, an important insight from the network perspective is the potential of extending access and development of marketing capabilities to more than two or dyadic relationships. The shift to network relationships may address the imbalance focus on internal firm resources as well as the presence of interfirm cooperation and competition.

This is an interesting perspective that is beneficial to address in terms of digital technology as an enabler of firm's network perspective of marketing capabilities. With the increasing globalization of markets, companies find they are unavoidably enmeshed with customers, competitors and suppliers. Since customers become more demanding and multi-cultural and the continuous increase of

interconnected relationships, firms need to differentiate their perspective of marketing capabilities. It seems logical that firms with a network perspective may better able to exploit their marketing capabilities to enhance their innovative capabilities and firm performance.

2.4. Innovative Capabilities: Literature Review

2.4.1 Definition

Consistent with Teece and Pisano (1998), this study defines ‘innovative capabilities’ as an actor’s (organisation’s, network’s etc.) ability to sense the changes in the environment and exploit existing resources and competencies in order to create competitive advantage by innovation activities (Tura and Harmaakorpi 2003).

The role of marketing in innovative capabilities has been noted in various studies related to the market-pull approach, the interactive model of innovation, the industrial clusters, and the dynamics of network services (Porter 1990; Porter and Stern 2001; Furman et al. 2002; Leitão 2006; Silva and Leitão, 2007).

Types of Innovative Capabilities

Incremental innovative capabilities perceived to be a firm’s ability to refine and reinforce existing products and services in order to achieve innovation. In contrast,

radical innovative capabilities is concerned with a firm's ability to transform into a great extent existing products, services and technologies that are perceived to be "old" or "out-of date" (Chandy and Tellis 2000). It is important to point out the main difference between incremental and radical innovative capabilities is implementation and use of organisational knowledge. Abernathy and Clark (1985, p.5) noted that incremental innovations "build on and reinforce the applicability of existing knowledge," while radical innovations "destroy the value of an existing knowledge base". In other words, incremental innovative capabilities draw upon reinforced existing knowledge in order to improve existing knowledge; while on the other hand, radical innovative capabilities draw upon transformed existing knowledge in order to transform existing knowledge on technologies into something new (Subramaniam and Youndt 2005).

2.4.2 The importance of marketing capabilities based on a firm's view of its network relationships for innovative capabilities

The resource-based view recognises the presence of differing resource endowments through a firm's bundle of resources and capabilities, which would include innovative capabilities. The importance of marketing capabilities in the extent of firm innovativeness has been noted in terms of how information about customer needs and competitor can influence new product development success (Song et al. 1996).

But no empirical research has yet identified specific marketing capabilities (pricing, product development, channel management, marketing communications, selling, market information management, marketing planning and marketing implementation) that enhance firm innovative capabilities. Although, empirical evidence suggests the potential of network relationships for firms to enhance innovation and/or improve business opportunities (e.g., Hakansson et al. 1999; Walter et al. 2006); no research has examined and linked a firm's network view of marketing capabilities to innovative capabilities. A long established research stream in the innovation literature supports the notion that highly innovative firms perform better than less innovative ones (Dosi 1988; Mansfield 1968; Wolfe 1994), the development of innovative capabilities may rely on the development of certain marketing capabilities through network relationships. Galunic and Rodan (1998) build on the work of Hargadon and Sutton (1997), who found that a firm at the confluence of several industries was able to broker the knowledge derived from the multiple industries to create new business concepts. From firm's internal perspective, Ahuja (2000) finds that both firm characteristics (technical and commercial capital) and its structural characteristics (social capital) influence a firm's propensity to ally. It is possible that a diversion from this stream by arguing that the capabilities of the firm need to be studied in conjunction with network structure in order to properly understand the sources of the firm performance. Becker (1970) argued that actors positioned in a preferred location in the network receive innovation-related information that other firms might overlook.

Internal firm characteristics (e.g., strong R&D team, communication structures, and culture) impact on firm innovative capabilities. In particular, innovativeness is closely tied to absorptive capacity, which is defined as the capability of the firm, predicated on internal organisational characteristics, to utilize and exploit knowledge obtained from external sources (Cohen and Levinthal 1990; 1994). Cohen and Levinthal (1990, p.128) point to the organisation's 'ability to evaluate and use outside knowledge' as 'a function of the prior related knowledge . . . [which] confers an ability to recognise the value of new information, assimilate it, and apply it'.

Of particular importance is the influence of marketing capabilities on innovative capabilities. While market orientation has been linked to innovation performance, the influence of marketing capabilities on innovative capabilities has not been examined. This gap in the literature has been further highlighted in today's competitive business environments with proliferation of innovations and new technologies. This study focuses on firm's network perspective of its marketing capabilities and their impact on a firm's innovative capabilities in digital environment. It also examines the relationships between specific marketing capabilities and innovative capabilities by extending marketing capabilities from a firm's knowledge about internal resources to its knowledge of network relationships.

Thus, it is hypothesized as:

Hypothesis 1a: A firm's network perspective of marketing capabilities has a positive impact on its innovative capabilities.

Hypothesis 1b: The types of a firm's network perspective of marketing capabilities individually have positive impacts on innovative capabilities.

2.5. Digital Technology: Literature Review

This section provides a review of the relevance of digital technology for business and its application to enhance business performance. It discusses the background to digital technology before conceptualising digital technology as a mediator for the relationship between marketing capabilities and innovation.

2.5.1 Introduction

Businesses are investing more and more on digital technology in order to achieve innovation and gain competitive advantage (Vecchi and Bennan 2009; Lumpkin and Dess 1996). We can see the progression of digital technologies and their influence in sectors such as commerce (Zwick and Dholakia 1999) and entertainment (Dennis et al. 2006) to government (Digital Forvaltning 2007), communications (Kenney and Dossani 2006), education (Hsieh 2001) and health care (Miller and West 2009).

Digital technology is one of the key factors that is used by the firm to gain competitive advantage and reflects the use of digital technology with regard to understanding customers, competitors, (Gatignon and Xuereb 1997; Zhou et al. 2005).

Understanding the linkages between a firm's digital technology strategies and organizational outcomes has become vital from both managerial and academic perspectives. From a managerial perspective, in a business environment characterized by rapid technology creation and diffusion, shrinking product life cycles, and organizations increasingly adopting digital technology as a competitive tool (Jeong et al. 2006), it has become crucial for managers to understand the role of digital technology and its relationship to different organizational outcomes. From an academic perspective, recent research has challenged the classic marketing principle of market orientation which advises firms to stay “close to their customers” (Hortinha et al. 2011). Effective use of digital technology can be useful when the strategic imperative is to acquire and apply knowledge for the development of new products and services.

This research focuses on the mediating role of digital technology between a firm's network perspective of marketing capabilities and innovative capabilities. Not only do innovation capabilities lead to superior new product performance, its benefits become stronger in conditions of increasing market uncertainty, rapid technology change, and intensifying competition (Zhou 2006).

The adoption of new technologies, especially information technology, has led to a range of innovations in services. Technology is defined as a collection of basic and applied knowledge, as well as artifacts that can be used to conceptualize, develop, create and deliver new products and services (Song and Montoya-Weiss 2001; Wang and Ahmed, 2004; Zahra & Bogner, 2000). Technological advances are often the

basis for radical and incremental innovations (Johnson et al. 2000), and are valuable in firms that provide product and services with high levels of technology content. Hence, this research investigates the relationship between digital technology, firm's network perspective of marketing capabilities and innovative capabilities in turn firm performance.

Digital technologies can take many forms such as digital music, digital imaging and printing, digital television and digital library. These offerings are enabled mainly through the Internet revolution and information communications technology. Digital technologies can offer a greater value to a firm's customers by providing higher quality services and products (Kalakota, and Robinson 2003). The use of digital technology has created new opportunities for firms to reach customers and better satisfy customer needs such as through individualised and customised services (Thompson and Jek 2002; Rust and Thompson 2004). Although the use of digital technology mainly through website marketing and customer relationship management is prevalent, there is little empirical research about the construct of digital technology and its relationship with marketing capabilities and firm performance. Firms that are willing to compete and lead in an industry or a sector cannot overlook the importance and the advancements that digital technologies are offering.

Internet

Internet is one of the most popular medium of communications for implementing and applying digital technologies (European Commission 2002). Firms face challenges when they want to add an Internet strategy into their business and marketing strategies; this occurs because adding an Internet strategy could bring significant changes to the traditional way in which firms operate and develop strategies (Thompson and Jek 2002; Dennis et al. 2006).

Digital technology enables a firm to sell online and improve customer service. An advantage of digital technology is the rapid information sharing either within an organisation, to its customers or to industrial customers in business markets (Thompson and Jek 2002). Firms are able to respond at a greater level to on-demand services. Advances in information and communication technologies can be perceived as a threat to an individual's privacy (Zwick and Dholakia 1999; Bae and Choi, 2007). Biggiero (2006) states positive effects of face-to-face communication have been undermined by digital technology and argued that the replacement of face-to-face communication by the computer-mediated depends crucially in social-psychological aspects and on task complexity.

The Internet has great potential for selling an existing product to existing or new markets. The Internet can be used effectively in order to increase market share and provide additional promotion and support facilities. Digital technologies spur

growth in new services and firm innovation activities in terms of improving firm performance and customer satisfaction.

The potential of digital technology through the Internet has created new trading platforms in the marketplace such as e-marketplaces (Eng 2004), which enable small companies to compete more effectively and globally with large counterparts. The Internet enables firms to compete and reach international markets at a relatively low cost. Digital technology can redefine business dynamics, and change the way businesses compete and serve customers in the marketplace. In particular, digital technology influences innovative capabilities by enabling firms to offer customers a wide range of products and services.

Digital technology's most common usage is the internet. One of internet's advantages is speed of exchanging information often in real-time and its ability to reach connected individuals and organisations beyond national borders. Clearly, the use of digital technology influences the ability of firms to exchange information and communicate with various actors internally as well as externally.

Advent of computers and information technology

The advent of computers has changed the way businesses operate and perform in the marketplace. Strategy based on computers and information technology circumvents traditional physical barriers and create new interface within an organisation as well as with external firms. For example, if a firm makes its technologies as part of their

advantages, it will improve and create a faster distribution of information within and outside the firm and benefit its business strategies. An understanding of key marketing capabilities is crucial for firms to outperform rivals through sensitivity, speed, customisation and efficiency of digital technology in business networks rather than merely based on internal technology application in a firm. The availability of computer and information technologies allows firms to reach customers instantaneously and individually. In particular, digital technology facilitated by computers and information technology devices also means that customer preferences can change rapidly. Nargundkar and Srivastava (2002) support that knowledge about customers and their needs are considered to be critical for the long term success of a business. Thus, digital technology is an important source for firms to development competitive advantage.

Technology for improved communication

The use of digital technologies through innovation of new communication gadgets such as mobile phones, tablets and computers have significantly influenced innovative capabilities and enabled new business opportunities to enhance firm performance. The increasing application of digital technology in the business has created better communications among the various functions within the firm operations and its external users. As pointed out by Drucker (1998), access to information represents the basic precondition for success of a firm.

Globalization and e-Commerce

Shultz (2001) states end-users control the markets rather than the marketers. The e-commerce business activities offer several advantages to firms: it provides tools that can be used in meeting the changing customers' wants and needs and also contribute to the global business expansion, which can be achieved either by autonomous strategy or through strategic partnership. Through the Internet, firms can generate a record that keeps their sales and purchases not only of their customers but also of their suppliers, dealers and other partners. In highly competitive markets and in the need for expansion firms must understand that often there might be required to create strategic partnerships and strategic alliances with other companies. Those partnerships or alliances would enable to penetrate segments of the global market.

IT planning and acquisition and Software Development Life Cycle (SDLC)

IT planning and acquisition has increasingly become vital part of business strategy nowadays. Firms must introduce new technologies that can keep up with the demands and needs of today's world. Personnel must be trained on how to use new technologies. Digital technologies can provide wider implications for a firm's system and create a more effective performance of the firm's functions and communications. The wider implications of the system can enable a company to adapt easier to the changes in the business environment (Gurlen 2003).

Software development life cycle (SDLC) and software acquisition life cycle (SALC) are integral parts of development of effective information system. SDLC process is

an essential part of management information system serving as the centralized monitoring system. Market model of Kierzkowski et al. (1996) create a five phase digital marketing framework: attract users, engage user's interest and participation; retain users; learn about their preferences; and lastly relate back to users to provide customize interactions (Kiani 1998). These phases can be enhanced and be faster and more effective through the use of digital technologies. SDLC incorporates these essential factors within the Management Information System (MIS). It contributes in coordination and support of various functions and user requirements in order to help the organisation to achieve its strategic goals. It includes important steps that identify the areas that must be improved in order to develop an effective information system.

Technology as an integral part of Customer Relationship Management (CRM)

Customer relationship management is yet another essential business strategy that combines technology and other business processes around the customers. Analysis and identification of the changing trends of the customer requirements have become important components in order to gain competitive edge in the marketplace. A firm's market strategy focuses on the needs and requirements of the customers and makes continuous efforts to update its products and services in order to meet those demands. Understanding of consumer behaviour, therefore, plays a major role in the development of marketing strategy and planning.

Assessing the way customers behave and their decision making process of buying products and services, offer significant data that enables a firm to form

appropriate strategies and campaigns to target the customers. The need for effective CRM strategy has therefore, become essential for improving business performance, and contributes in meeting the challenges of the external factors in order to maintain and also increase their existing customer satisfaction.

The digital technology has brought a revolution in the distribution of information and communication around the world. It has created a new segment in the markets of new needs and expectations. E-commerce has opened new doors in the markets and has created new range of opportunities challenges. Digital technology is taking us beyond the local markets and offering opportunities for profitability, innovation and competitive advantage at a global level. Dennis et al. (2006) also support that firms are increasingly investing in new digital technology to gain competitive edge and increase market share. This suggests that digital technology has a strong impact on the performance of a firm. IT skills can be an essential part of management strategy and entire workforce needs to include updated information systems and the latest technologies within its work culture. The rapid changes in the global business environment have made it essential to meet the challenges of the contemporary lifestyle that demands more innovative approach based on the latest technology.

Marketing communications are more consolidated and associated with product promotional activities. Therefore, there is a need for conceptualising marketing communication in the evolving interactive marketplace with the primal task of facilitating understanding in culturally and socially-constructed

environments. Much has been reported on the cost effectiveness of a web presence in the business to consumer (B2C) area and the predominant aspect of internet marketing business to business (B2B) (Hagel and Armstrong 1997; Hoffman and Novak 1997; Shapiro 2001). However, research in web marketing theory and practice is not well developed. What does exist indicates that the written text, a predominant trait of digital technologies and the creation of virtual communities are important aspects of the marketing process. Whilst the literature pertaining to a digital presence is not exhaustive, it does provide some possible clues for conceptualising the nature and segments that have evolved from this paradigm. Digital presence research has focused on cost effectiveness and social support derivations (Berthon et al. 1996; Nettleton et al. 2002). Digital technologies are a model of distributed computing that facilitates interactive multi-dimensional many-to-many communications. As such, the digital technologies support global information access and retrieval systems as the hypermedia computer mediated environment (CME).

The proliferation of digital technologies has resulted in the creation of new social and marketing spaces, and a new form of interaction and identity formation. Whilst cost benefits and profit derivation of the internet and other hypermedia environments have been the focus of much research, the majority of these assessments have left many assumptions unarticulated. They have avoided questions of how communication content and interactivity afforded by the internet is radically different from conventional monolithic one-to-many communication models. Consumers, hitherto receivers of unidirectional modes of communication have been

transformed into potent participants in the emerging networked economy. The potential of the digitally networked economy, as a consequence of the internet, has not only created a global economy, but also has fashioned a means of communication. The inherent potential of digital technologies as a commercial medium to speedily reach an extensive market has been widely documented in the literature (Armstrong and Hagel 1996; Blattberg and Deighton 1996; Deighton and Barwise 2001; Evans and Wurster 1999; Hoffman and Novak 1997; McKenna 2002). For example, Kiani (1998) contended that the increasing popularity of such technologies has given many consumers, marketers and users a new experience. Nonetheless, the fact that this is recognised as a central issue in the marketing communications literature suggests there is still a lack of rigorous cross industry empirical research on interactivity and benefits of accessing the evolving market space in the digital era.

2.5.2 Digital Technology as a Mediator

One of the objectives of this study is to understand how digital technology serves as an enabler between marketing and innovative capabilities. Given the pace of information technology advancement in accelerating network phenomenon, it would be important and relevant to consider digital technology as a mediator for the relationship between firm's network perspective of marketing capabilities and innovative capabilities.

The importance of using productively and efficiently digital technologies on various processes within a firm results in the effective overall performance. It becomes highly relevant to understand the strengths and weaknesses of a particular digital technology before it is being put into implementation in the system processes of an organisation. Knowing the various strengths and weaknesses of digital technologies enables a firm to evaluate its appropriateness within the business environment of the organisation. Their understanding enables a firm to know to what extent these aspects can be used for achieving a firm's aims and objectives.

When digital technologies are used correctly, they affect positively several functions in a business. For example, digital technology contributes in the faster production and distribution within the internal environment of an organisation. It also provides the benefit of fast information to and from its customers and other business associates. Faster information gathering increases the market knowledge and therefore it enables the firm to respond quicker and more efficiently to the market's requirements (Jaworski and Kohli 1993). Also keeping updated and continuously enhancing the technological knowledge can provide the opportunity to firms to innovate and help its sustainable competitive advantage (Marsh and Stock, 2003). Generally what characterises digital technology is the cost advantages, and speed and enabling new resources (e.g Thompson and Jek 2002; Kalakota and Robinson 2003; Salo et al. 2003).

How a firm performs in an environment or an industry also depends on how it deals with its relationships.

Digital technology is not examined and especially no studies up to date have measured digital technology using a measurement scale. One of the biggest contributions of this study is this study developed a measurement scale for digital technology and examined from network, operational, organisational and marketing level.

Also, researchers show empirically the importance of digital technologies on network communications (Sassen 2002) and supply chain processes (Patnayakuni et al. 2002), arguing that they facilitate companies to overcome problems related to IT infrastructure. They (Sassen 2002; Patnayakuni et al. 2002) support that digital technologies enable quick response and quality information sharing about their customers and internal communication. It can not only reduce the time delays along the value chain but also enable the organisation to source and distribute its products and services anytime and anywhere (Rust and Thompson 2004). Getting faster responses on the customer's needs and getting quicker information on the market requirements, firms are able to form more effective marketing and business strategies (Carneiro 2005).

It is important for firms to have managerial knowledge, in order to be able to understand the market in which they are operating and respond quickly to the technological and customer preference changes (Marsh and Stock 2003). Therefore they must pay attention to their capabilities, and continuously enhance their marketing knowledge. It can be argued that since digital technologies improve and

increase the rapid information sharing that they would benefit the organisational capabilities. Studies have shown that the marketing capabilities and technological capabilities can be influenced by the environmental context in which they are operating (Song et al. 2005).

Song et al. (2005) investigated the effects of marketing and technological capabilities and their interaction on firm's performance. Their findings indicate that both of these capabilities increase the firm's performance. Technology-related capabilities develop and produce technologies and help in the quick response to the rapidly changing technological environment (Wind and Mahajan 1997). Marketing capabilities are perceived as knowledge, skills and resources that enable a firm to predict changes in customers and market members (Day 1994). Song et al. (2005) supported that the interaction of technological and marketing capabilities are more likely to occur during the commercialization of a new product which in turn can create innovation. In order for a firm to achieve competitive advantage it must rely on existing resources and pay significant attention to the creation of new ones (Barney 1991). To take into consideration of the capabilities of an organisation, firms should adopt a strategic orientation in order to gain efficient performance and achieve innovation.

The study of Conant et al. (1990) stated prospectors are superior in marketing capabilities (Song et al., 2008). The marketing literature supports that gaining market and competitive information can lead to better market orientation, better performance, and sustainable competitive advantage (Day 1994; Jaworski and Kohli,

1993). This information could be enhanced by the use of digital technologies. Therefore, the present study treats digital technology as a mediator of a firm's network perspective of marketing capabilities. This recognises that a firm's network perspective of marketing capabilities may be mobilised through digital technology. Therefore, this research asserts that digital technology mediates a firm's network perspective of marketing capabilities and innovative capabilities. Thus, it is hypothesized as:

Hypothesis 2: The relationship between a firm's network perspective of its marketing capabilities and innovative capabilities is positively mediated by digital technology.

2.5.3. Learning Orientation

Learning orientation is conceptualized as a set of values that influence the degree to which an organization is satisfied with its theories in use (Argyris and Schon 1978), mental models (De Geus 1988), and dominant logics (Bettis and Prahalad 1995), which may or may not have their bases in the marketplace.

There are four values or dimensions that are associated to the learning orientation (Day 1991, 1994; Sinkula et al. 1997). These are commitment to learning, shared vision, open-mindedness and intra-organizational knowledge sharing.

Commitment to learning: refers to the degree that an organization values and promotes learning. It is important for an effective firm performance a firm to know the causes and effects of its actions.

Shared vision: refers to a firm's focus on sharing its aims and objectives. This dimension is essential to ensure that learning by members of a firm is occurred. A clear dimension for learning is likely to form an organization's strength or even a core competence.

Open-mindedness: is the willingness to critically evaluate a firm's operational routine and to accept new ideas. Firms must cope with rapidly changing technology and turbulent markets. It is important to "unlearn" old ways as it is to renew and update the knowledge base.

Intra-organizational knowledge sharing: refers to collective beliefs or behavioural routines related to the spread of learning among different units within a firm. It keeps alive the knowledge and information gathered from various sources and serves as a reference for future actions.

Since acquisition of technology alone would not be sufficient for firms to achieve above normal returns and/or generate innovation, it has been shown that firms with high levels of learning orientation would make the most of their capability. Hunt and Morgan (1995) argue that learning is an important complex resource of a firm that enables to create competitive advantage (Baker and Sinkula 1999). Learning orientation refers to a set of organizational values that defines the ability to create, disseminate, and use new knowledge (Sinkula et al. 1997). This includes obtaining and sharing information about customer needs, market changes,

and competitor actions, as well as development of new technologies to create new services that are superior to those of competitors (Chaveerug and Ussahawanitchakit 2008). Baker and Sinkula (1999, p.413) supports that learning orientation is an organizational characteristic that reflects the value that a firm places not only on adroitly responding to changes in the environment but in constantly challenging the assumptions that frame the organization's relationship with the environment.

Researchers argue that market orientation when examining learning orientation as the terms are closely related to each other; for example Kohli and Jaworki's (1993) definition of market orientation is primarily concerned with information penetrating to current and future customer needs. "Market orientation is an organizational characteristic that directs and priorities Market information processing activity, learning orientation is an organizational characteristic that affects a firm's propensity to value generative and double-loop learning" (Baker and Sinkula 1999, p.413). Market orientation is reflected by knowledge-producing behaviours. Learning orientation is reflected by a set of knowledge-questioning values (Sinkula et al. 1997). Baker and Sinkula (1999) argue that the combination of a strong market orientation and a strong leaning orientation that can contribute to a sufficient resource of better firm performance and sustained competitive advantage (Day 1994; Dickson 1996).

Kohli and Jaworki (1993) support that changes in the market environment have an impact on the learning orientation of a firm. A greater level of learning orientation and a great level of response are required in order to be informed about

the changes in customers' preferences and needs. This can be achieved with the use of digital technology. Farrell (1999) suggests that technological advancements in order to achieve innovation require a greater level of focus on the learning orientation. Slocum et al. (1994, p.35) support that successful organisations are flexible, responsive and rapid learners and are able to produce innovative products and services and fulfil their customers' requirements. Verona (1999) supports the innovation process involves the acquisition, dissemination and use of new knowledge, ideas, processes, products or services (Thomson 1965). It is argued that learning is related to the creation of new knowledge, something that is significant for firm innovation capabilities, marketing capabilities and firm performance (Hurley and Hunt 1998). Slocum et al. (1994) state the main strategic objective of a learning organisation is to be able to learn new capabilities, and the ability to learn from past successes and failures (Chaveerug and Ussahawanitchakit 2008).

An organization committed to learning is likely to possess state-of-the-art technology, which leads to greater innovation capabilities in both products and processes (Day 1991, 1994; Sinkula et al. 1997). Many scholars stress the importance of such an orientation to enhancing innovation capabilities (Damanpour 1991; Cahill 1996; Day 1991). Learning occurs largely through organizational interaction with, and observation of, the environment.

Given the rapid changes of technology, environmental factors such as customer demand uncertainty, technological turbulence and competitive uncertainty

must be taken into consideration (Cahill 1996). Therefore, an organization committed to learning can enhance its innovation capability in three ways.

First, it is important for a firm committed to innovation to have a significant understanding of technology and to use it for innovation and competitive advantage but the firm must learn about technological advancements to develop the ability to develop and create technological breakthrough.

Second, a firm must always keep itself updated and well-informed on any changes occur in market demand and it must have the ability to learn quickly and efficiently the changes in customers' requirements and be able to correspond to them. Urban and Hauser (1993) use the term "core benefits proposition" in order to present the significance of understanding customers' needs. The knowledge generating must be used effectively to products' strategies. New products must reflect customer values.

Third, an organization committed to learning is likely to have a greater innovation capability than competitors. Being able to learn from competitors' successes and failures (Lant and Montgomery 1987) as well as to observe and evaluate competitor's strategic moves and marketing capabilities (Gatignon and Xuereb 1997) and understand their strengths and weaknesses, can contribute to a high innovation capability. Therefore it hypothesized as below:

Hypothesis 3: The relationship between a firm's network perspective of marketing capabilities and innovative capabilities is positively moderated by learning orientation.

Hypothesis 4: The relationship between a firm's network perspective of marketing capabilities and firm performance is positively moderated by learning orientation.

2.5.4 Innovative capabilities and Firm Performance

Firms which both possess high levels of innovative capabilities may be able to access novel, diverse, and unique information and more successfully recombine, transform, and utilize the information to generate valuable innovation. While connections with external knowledge sources are clearly critical to innovative capabilities, focal firm characteristics that operate independently of its structural position will also influence innovative capabilities, and in turn enhance firm performance. In sum, firms which benefit from high levels of innovative capabilities perform better (Calantone et al. 2002). In the study of Keskin (2006), the results show that firm innovativeness positively affects firm performance; firm learning-orientation positively influences firm innovativeness; firm market-orientation positively impacts firm learning orientation; firm learning-orientation mediates the relationship between firm market-orientation and firm innovativeness; and firm market-orientation. Guan and Ma (2003) noted that innovative capabilities have a

positive impact on export performance for Chinese firms. The study of Sher and Yang (2005) investigated several aspects of innovative capabilities on firm performance. The empirical results indicate that innovative capabilities are mostly positively related to performance as measured by returns on assets (ROA) (Sher and Yang, 2005). The recent study (Lee 2010) examined the relationship between innovative capabilities and sustained competitive advantage. Lee (2010) focused on product, process, management and marketing innovation, they found that innovative capabilities influence sustained competitive advantage directly.

Therefore it hypothesized as below:

Hypothesis 5: Innovative capabilities is positively associated with firm performance.

2.5.5. Control Variables

Jaworski and Kohli (1993) examined the moderating effect of environmental variables such as market turbulence (the rate of change in composition of customers and their preferences), competitive intensity and technological turbulence (the rate of technological change) on the market orientation performance relationship (Asikhia 2007).

Uncertainty has been an important construct in a number of fields; including organization theory, marketing, and strategic management (Chen and Paulraj 2004). There are several studies that examined environmental uncertainty affects firm performance and innovation. “The concept of uncertainty refers to the phenomenon where, due to limited information concerning environmental conditions, managers have great difficulties in confidently assigning probabilities to how these conditions influence the effectiveness of strategic choices” (Duncan 1972; Knight 1921 cited in Kor et al. 2008, p.241). In industries with high levels of uncertainty, firms’ actions and their performance become difficult to predict.

Building on Jaworski and Kohli (1990), this study considers competitive intensity (Jaworski and Kohli 1993), technological uncertainty (Davis 1993) and market dynamism (Jaworski and Kohli 1993) as control variables while examining the relationship of the main constructs. Market turbulence was included as control variable in analysing the marketing capabilities, innovative capabilities, and firm performance in the previous empirical studies. As this study did not consider market turbulence as a moderator, as the data was obtained from different industries. Studies show that the market environment plays a significant factor on a firm’s capabilities. Song et al. (2005) in their study support that the marketing capabilities and innovative capabilities can be influenced by the environmental context in which they are operating. Specifically they (Song et al. 2005, p.263) argue that “in high technologically turbulent environments the role of marketing-related capabilities generated performance may be downplayed particularly in the situation where the whole industry is affected by rapid technological change”. Technological uncertainty

can further heighten the information asymmetry between shareholders and managers. With greater technological uncertainty, it becomes increasingly difficult to predict the specific new product and process technologies that will emerge in the industry. Unexpected changes in technology platforms in the industry that firms are operating can lead to the loss of competitive advantage (Kor and Mahoney 2005). Much empirical work has been done on the relationship between competitive intensity, innovation and productivity. Many studies found that the relationships between competitive intensity and innovation, and innovation and productivity, are positive.

Environmental market conditions influence the nature and the intensity of competition and the dynamisms of industries. Two environmental conditions that are closely related to the strategic resources are the competitive intensity and market dynamism (Jaworski and Kohli 1993). Market dynamism refers to the degree of change in the market (Achrol and Stern 1988; Jap 1999).

Also, Marsh and Stock (2003) argue that technological capabilities can be not fully be used or properly developed due to the lag in market development in which they are meant to be applied in. Similarly, marketing capabilities relative to a specific customer group may not have been exploited because technological capabilities were not sufficient to meet market demands (March and Stock 2003). In a digital environment it is crucial for managers to have appropriate market and technological knowledge in order to be able to use, direct and redirect the new digital technologies in order to achieve efficient performance and innovation. By being aware of the development of new marketing and technological capabilities, a firm

can enhance its knowledge and improve innovation (e.g Hunt 1995 cited in Yoon and Lee 2005), which in turn can lead to competitive advantage (Porter 1990). Lack of technological knowledge may lack meeting market demands, which in return leads to an ineffective firm performance and lack of innovation.

Market dynamism is an important factor in the way firms develop their market knowledge and create strategies in order to adapt to changes or even innovate. Marsh and Stock (2003) also argue that technological capabilities can be not fully be used or properly developed due to the lag in market development in which they are meant to be applied in. Similarly, marketing capabilities relative to a specific customer group may not have been exploited because technological capabilities were not sufficient to meet market demands (March and Stock 2003). In a digital environment, it is crucial for managers to have appropriate market knowledge as well as technology in order to be able to use, direct and redirect the new digital technologies to achieve efficient performance and innovation.

Dynamic markets influence firm operations and demand that firms be able to adjust quickly for success (Jap 1999). Gatignon and Xuereb (1997) demonstrate that under conditions of high market dynamism, investments in firms' technological orientations become more critical, and the relationship between technological orientation and business success becomes stronger. Similarly, Lumpkin and Dess (1996) argue that under conditions of increased dynamism, entrepreneurial orientation and performance is stronger when dynamism is higher. This changes in the technology can include the rapidly usage of digital technologies in the markets.

Therefore it can be assumed that market dynamism can have an impact in the relationship created through digital technology between marketing capabilities in the development of effective firm performance.

Bunduchi's (2010) study on product innovation and dynamic capabilities points out that market dynamism has effect on innovation and structures. The same study supports that even when a firm has the appropriate and effective capabilities for innovation to gain competitive advantage depends on the market dynamism. The influence of market dynamism on capabilities has an impact on innovative capabilities (Jantunen et al. 2006). Market dynamism includes changes of various market elements, such as customer demand, technology, and competitor structure. When market dynamism creates external uncertainty, it becomes difficult for business to be able to predict future situations and requirements, something that can influence future firm performance (Aldrich 1979). Technological uncertainty and market dynamism tend to increase competition and enhance a firm's ability to seek for new opportunities. This results to potential demand growth and in order for firms to gain competitive advantage they focus more on innovative activities (Jantunen et al. 2006). The opportunities and actions for innovation should be continuous. In order to enhance innovative capabilities, in turn, firms' performance, firms should develop and adapt to the changes and demands.

2.6 Summary

Managers are increasingly under pressure to innovate in today's rapid technological changes, globalised markets, and blurring of industry boundaries particularly through proliferation of open networks and new technologies. Since innovation can be crucial for the growth and success of a firm (Andrews and Smith 1996; Sethi et al. 2001), studies of innovation have taken many different research directions in numerous management fields (for a review see Hoffman et al. 1998). Of particular interest is capability perspective of innovation that focuses on a firm's ability to innovate and develop competitive advantage.

A literature review was undertaken in order to develop conceptual framework and achieve research aim and objectives. As noted before, this study draws on three main theories (resource-based view, market orientation and network perspective) for examining the impact of marketing capabilities on innovative capabilities. The resource-based theory of the firm underpins the notion of capabilities for a firm's marketing functions. The resource-based theory focuses on a bundle of resources and capabilities that are heterogeneous, scarce, durable, not easily traded and difficult to imitate as sources for the development of sustainable competitive advantage (Penrose 1959; Wernerfelt 1984; Barney 1991; Peteraf 1993, Eng and Okten 2011). Market orientation is one of the most extensively investigated constructs in the marketing literature. This research examined market orientation as (1) part of an organisation wide activity of gathering, analysis and dissemination of data to gain

market responsiveness (Kohli and Jaworski 1990). This study conceptualises that capability development for responding to changes in the environment includes a firm's external resources through connected relationships. By addressing the inherent limitation of marketing orientation and resource-based view that focus mainly on single firms and internal resources respectively, this study meets this challenge and presents a new perspective of the role of marketing capabilities.

Following the business network perspective of the IMP group, this research examines a firm's network relationships based on its knowledge of external relationships connected to the firm. Since there are numerous research traditions on networks, it is important to note that the IMP group business networks perspective mainly focuses on relationship management in and through relationships (Hakansson and Snehota 1993). Thus, to capture network effects of marketing capabilities on innovative capabilities, a firm's view of its network relationships provides the basis for relating the identified marketing capabilities to the firm.

The concept of marketing capabilities as a general construct has been researched extensively in marketing (Day 1994; Vorhies and Harker 1999, 2000; Dutta et al. 1999; Weerawardena 2003; Vorhies and Morgan 2005; Krasnikov and Jayachandran 2008; Eng and Spickett-Jones 2009). Using Day's (1994) definition, marketing capabilities are integrative processes designed to apply the collective knowledge, skills, and resources of the firm to the market-related needs of the business, enabling the business to value its goods and services and meet competitive demands. They include eight marketing capabilities tested by Vorhies and Morgan

(2005) and Eng and Spickett-Jones (2009): pricing, product development, channel management, marketing communications, selling, market information management, marketing planning and marketing implementation. Empirical evidence on marketing capabilities has noted interdependence of collective marketing capabilities and their salient individual impact on business performance.

Conceptualising digital technology as a mediator is consistent with the widespread diffusion of technology application in business-to-business marketing (e.g., relationship management, online trade), and the construction of social environment for interaction in virtual contexts of the Internet (e.g., e-marketplaces, virtual corporations). In brief, digital technology is fundamental in facilitating as well as enabling organisational processes and capabilities in innovation.

Past studies have conceptualised and examined learning as antecedent of market orientation and innovation in order to enhance innovation and firm performance (e.g., Han et al. 1998; Calantone et al. 2002). Innovative capabilities is concerned with the ability to develop and apply existing resources (e.g., technologies) and capabilities (e.g., know-how, skills) that support innovation strategies (Kim 1997; Burgelman et al. 2004). While a firm's innovative capabilities may generate many different types of innovations (see Garcia and Calantone 2002), the degree of innovative capabilities can be examined on a continuum between incremental and radical innovation (Dewar and Dutton 1986). A key construct for understanding the degree of innovative capabilities is creativity, which is a core

antecedent of innovation for the generation of novel and meaningful ideas (Amabile et al. 1996).

Calantone et al. (2002) examine learning orientation comprising four cultural norms (commitment to learning, shared vision, open-mindedness, and intraorganisational knowledge sharing) in an organisation that have a positive effect on firm innovativeness and firm performance.

As the degree of innovative capabilities is influenced by learning orientation regardless of whether the firm chooses to generate radical or incremental innovations, this study examined the moderating effect of learning orientation between firm's network perspective of marketing capabilities, innovative capabilities and on how it can be supported to enhance firm performance.

CHAPTER 3

Research Methodology

3.1 Introduction

Building from the literature review and research assumptions of the conceptual model, this chapter is concerned with the research methodology carried out by the present study. It defines the research questions and describes overall research process. This chapter is structured into nine sections. The first section begins with the discussion of the philosophical foundations of social science research. The second section provides discussion about the research approach. The third section identifies the research objectives of the present study. The fourth section examines the strategy of the research. The fifth section presents the research time horizon. The sixth section highlights the primary research including sampling and questionnaire development. The seventh section examines the pilot research including pilot research objective and recommendations for the main questionnaire. The eighth sections examine data collection which highlights identification of informants, survey response and characteristic of the study sample. The ninth section concerns with credibility of research findings and the final, the tenth section concludes the chapter with a summary of the research methodology.

3.2 The Philosophical Foundation

It is significant to distinguish between the overlapping terms such as research methods (Zikmund 1991), research strategy, (Yin 2003) and research design (Creswell 1994; 2009). According to Creswell (2009), there are three essential components which are crucial for any research. These components are philosophy, strategies and specific methods. Research philosophy relates to the development of knowledge and the nature of knowledge. The research philosophy that is adopted contains important assumptions. These assumptions will underpin the research strategy and the methods that are chosen as a part of research strategy (Bickman and Rog 2008). Research design is a plan of action and tries to link with research objectives and specific data collection methods (Creswell and Clark 2007); it is a logic that links data to be collected by researcher with the early question(s) of the study (Yin 2003). Research methods represent techniques of data collection and data analysis, and this data may be quantitative or qualitative (Creswell and Clark 2007).

The idea of scientific paradigm was introduced by Kuhn (1970), who argues that scientific research happens with a specific framework or paradigm which determines the essential concepts and methods, research design and specific problem to be studied. Creswell (2009) borrows the term “worldview” from Guba (1990) as synonymous with paradigm or epistemology. The worldview refers to “a basic set of beliefs that guide action” (Guba 1990; Creswell 2009). According to Creswell and Clark (2007), despite the types of worldview, they use common elements but from

different perspectives. These elements are *ontology* which focuses on the nature of reality (Carson et al. 2001); *epistemology* which focuses on what is the best way to gain knowledge; *axiology* which focuses on the value impact on research, *methodology* which focuses on process and sequence of the research, and finally *rhetoric* which focuses on the language of the research (Creswell 1994; 2009). Typically, understanding the assumptions underlying each paradigm (quantitative and/or qualitative) enables the researcher to increase the level of understanding and application of epistemological aspects of the study (Hathway 1995). Easterby-Smith et al. (1991) point out three reasons that make the understanding of philosophical issues crucial. These reasons are: (1) it can help the researcher to clarify the suitable research design such as data collection methods and data analysis, (2) it can provide researcher with essential knowledge to determine which design will flow and which will not. It gives the right direction and indicates the limitations of a particular approach and (3) knowledge of philosophy may enable the researcher to create a new approach that may be outside his or her previous experience. Since each philosophy contains important differences that will influence the way in which we think about the research process and enhance the way in which we approach the study of particular field of activity, it is very critical for examining the philosophical issues of the research.

3.2.1 Positivism

The dogma of positivism is not easy to understand because it is used in different ways by different researchers. It is a form of philosophical aspects of research, while for others it is a pejorative word used to point out immature data collection (Bryman and Teevan 2005). Typically, positivism is considered as a traditional and dominant paradigm in natural sciences. The basic assumptions according to positivism are that reality is external, and the objective and the observations are the essential methods to understand this. Then, knowledge becomes significant (Easterby-Smith et al. 1991; Creswell 2009). Therefore, positivism depends on the main assumptions of philosophy of sciences. These assumptions focus on the logical positivism or logical empiricism. Logical positivism focuses on the unity of science, which means the natural scientific methods are the only legitimate methods to understand the social science (Lee 1991). In addition, there are laws and theories that govern the world and the world cannot be understood unless these theories are tested (Creswell 1994; 2009).

Schulze (2003) distinguishes between three paradigms, positivism, post-modernism, and post-positivism which lie between these two paradigms. These paradigms differ from many angles such as nature or reality, the purpose of the study, the question of validity, nature and function of the outcomes of the study and view of the reality. According to positivism (modernism), the real world can be described as an objective which can be well known and identified and empirical

observation is the base to understand this reality. A study aims to collect data, analyse this data which can then be formulated to generate the laws that direct human behaviour. Scientific procedures and methods are the best way to ensure to which extent the results of the study are valid. Mathematical and graphical descriptions are the suitable way to describe a picture of reality, which can then be used to generalise the results of the sample study on population. Finally, the findings and interpretation of the empirical study are the best way to understand the nature of reality (Schulze 2003). Accordingly, the main strengths of positivism which is dependent on quantitative methods are: it can cover a wide range of situations, provide rapid and economical research and considerable relevance to policy decisions, especially when statistics aggregate from large samples (Easterby-Smith et al. 1991). Yet on the other hand, the positivism paradigm has received much criticism from social and behavioural sciences. They argue that statistical analysis and experiments hypothesis testing are not the only ways in the progress of science. For instance, Meehl (1978) argued that the excessive reliance on the statistics to justify hypothesis is partially responsible for doing poor science in the soft area of psychology. This is because in many cases there are some circumstances which can be extrapolated from experimental studies or from well-corroborated theories in order to make confident decisions about the direction of the influence of causal variables. However, there are also many other circumstances, especially in soft psychology, in which this is difficult or not possible to be extrapolated (Meehl 1978).

There are eight propositions of positivism: (1) Independence: the scholar is independent of what he/she is observing. (2) Value freedom: objective measures, not researcher's beliefs, are the bases of the choice of what to study, and how to study the phenomenon. (3) Causality: human behaviour can be understood by the causal relationship and essential laws. (4) Hypothetico-deductive: science passes through a series of processes of hypothesizing essential law and deducting which appropriate observations will accept or reject these hypotheses. (5) Operationalisation: concepts need to be operationalised through the use of quantitative measures. (6) Reductionism: the best way to understand the problem is to reduce it into simple, possible elements. (7) Generalisation: a suitable sample size enables one to generalize the regularities of study and (8) Cross-sectional analysis: regularities can enable one to make comparisons of various cross samples (Easterby-Smith et al. 1991).

3.2.2 Constructivism

Various terms are used synonyms for constructivism (Creswell and Clark 2007; Creswell 2009); like phenomenology (Easterby-Smith et al. 1991), interpretative research (Lee 1991; Carson et al. 2001). Indeed, all these terms argue that the world can be understood based on the subjective meaning of individuals' experiences (Creswell 2009). Therefore, understanding the meaning is a base to understanding the phenomenon which requires carefully looking at it from the different perspectives and subjective views of the participants. The role of research is to build

the theory starting from the bottom up and based on the personal perspective and drive brand patterns that essentially shape the theory (Creswell and Clark 2007). Therefore, according to constructivism, the social phenomena and meanings are derived as a result of social interaction among these social actors (Bryman and Teevan 2005). Denzin and Lincoln (2000) assume that the relative ontology (a world consisting of numerous realities), a subjectivist epistemology (knower and respondent reshape understanding), and naturalistic approach (in natural world) represent the back bone of constructivism.

Accordingly to constructivism, the role of social scientist should not to be just to collect the facts and measure how often certain patterns occur, but to understand the different meaning of the phenomenon the meanings of problem aspects (Easterby-Smith et al. 1991). Several multi-disciplinarians are associated more or less with the phenomenology paradigm. These involve interpretative sociology, naturalistic inquiry, social constructionist, and qualitative methodology (Easterby-Smith et al. 1991). The strengths of the constructivist paradigm and associated qualitative methods are pointed out by Easterby-Smith et al. (1991) such as the ability to look at change processes over time, to understand individuals' meanings, ability to modify new issues and ideas, to add new ideas to the existing theories or to discover new theories, as well as to provide methods of gathering data which is seen as more natural than artificial. However, constructivism has many drawbacks which involve that data collection; analysing and interpreting requires much time and many resources. Also problems related to subjectivity of researchers

are usually very untidy because it is difficult to control their pace, process and end points (Easterby-Smith et al. 1991).

The key criteria differentiating positivism and interpretivism are that:

- Positivism, the researcher is independent but in interpretive research the researcher is involved;
- Positivism, large samples may be used whereas interpretive research uses small numbers;
- Positivism, testing theories pervade whereas interpretive research focuses on generating theories or 'theory-building' (Carson et al., 2001).

Although the distinction between the two broad paradigms (positivism and interpretivism) may be clear at the philosophical level, when it comes to use of quantitative or qualitative methods and to the issues of research design the distinction breaks down (Burrell and Morgan 1979). Traditionally some authors have advocated the use of quantitative and qualitative methods (Fielding and Fielding 1986). This has been a common combination whereby qualitative research methods may be used to generate research phenomena that can then be quantitatively researched for general perspectives.

3.2.3 Pragmatism

The pragmatic worldview represents the main base of the mixed method approach. This worldview focuses on the importance of the pluralistic approaches to derive the knowledge about the phenomenon (Creswell and Clark 2007; Creswell 2009). Three premises represent the backbone of the worldview. The first focuses on the consequences of research; the second assumes that the research question, not the research method, should guide any research. The third assumes data collection can rely on multiple methods to find the solution to the phenomenon under the study (Creswell and Clark 2007). Pragmatism refuses the incompatibility thesis which assumes that the matching between quantitative and qualitative is impossible because both of them have a different philosophy. Therefore according to incompatibility , the researchers who try to use mixed methods in the same study are doomed to failure (Tashakkori and Teddlie 2003) Thus, pragmatism, which is also called transformative paradigm, provides a clear framework which enables the researcher to clearly understand the complex local reality and the power structure entailed in the community. According to the transformative paradigm, the local realities in the environment are considered as a guide to implement mixed methodology. Therefore, the process and data collection were implicitly blended in the local conditions (Mertens and Worley 2007; Habashi and Worley 2009). The pragmatism (transformation) paradigm is based on four basic beliefs: ontology which means that the social phenomenon is constructed by multiple realities. The phenomenon can be understood by looking at social, cultural, political aspects, gender and values that

shape the phenomenon. Epistemology focuses on the interaction between the researcher and the community as the main way to clearly understand the phenomenon and that knowledge can be deduced from social and culture context. Methodology assumes that the researcher has the opportunity to choose quantitative or qualitative or mixed methods, but based on the cooperation between the researchers and participants to determine the main aspect of research. Axiology concentrates on the ethical issues in the research, such as respect, beneficence, and justice (Mertens and Worley 2007).

In pragmatism, combined deductive and inductive thinking will conduct the research, and both quantitative and qualitative data will be used to gather the data (Creswell and Clark 2007). The dialectical relationship between deductive and inductive thinking was discussed by Bryman and Teevan (2005). They explain this relationship through interactive strategy. Interactive strategy involves the backward and forward relationship between data and theory. Deduction entails an element of induction and at the same time the inductive process probably includes a small amount of the deduction. For example, when the theory has been built on the set data, the researchers may want to collect extra data to show whether the newly merged theory can be proved or not.

Table 3.1: Broad definitions/explanations of positivism, interpretivism, ontology, epistemology and methodology

	Positivism	Interpretivism
Ontology		
Nature of “being/nature of the world”	Have direct access to real world	No direct access to real world
Reality	Single external reality	No single external reality
Epistemology		
“Grounds” of knowledge/relationship between reality and research	Possible to obtain hard , secure objective knowledge Research focuses on generalization and abstraction Thought governed by hypotheses and stated theories	Understood through “perceived” knowledge Research focuses on specific and concrete Seeking to understand specific context
Methodology		
Focus of research	Concentrates on description and explanation	Concentrates on understanding and interpretation
Role of researcher	Detached, external observer Clear distinction between reason and feeling Aim to discover external reality rather than creating the object of study Strive to use rational consistent, verbal, logical approach	Researchers want to experience what they are studying Allow feelings and reason to govern actions Partially create what is studied, the meaning of the phenomena Use of pre-understanding is important
Techniques used by researcher	Formalised statistical and mathematical methods predominant	Primarily non-quantitative

(Carson et al., 2001, p.6)

3.2.4 Chosen Research Philosophy: Positivism

This research focused on positivism as the researcher consulted prior theories in the literature in order to arrive at hypotheses at the early stages of the research study.

The main focus of research was theory testing which an existing theory or theories are taken as the guide to a piece of research and are tested using methods that will allow it to be measured and evaluated. Thus, theory testing would most likely be positioned under positivism (see Table 3.1). Since, to a large extent, the role of the researcher is dictated by whether positivist approach or an interpretivist approach is guiding the research.

3.3 Research Approach/Strategy

Research strategy, also called approach (Creswell, 2009) or design (Malhotra and Peterson 2003) can be defined as a guiding way for any researcher (Malhotra and Peterson 2003). It represents a framework for both data collection and data analysis (Bryman and Teevan 2005). Research strategy includes plans and procedures that guide the researcher through a set of decisions, from abroad assumption to detailed methods of data collection and analysis (Creswell 2009). The research strategy has to be chosen based on the researcher's questions in a particular situation (Yin 1994). Typically, the researcher's question guides good research in social science. Therefore, the choice of design should obviously depend on the nature of the

problem under investigation and the conditions surrounding this problem (Flyvbjerg 2006). Historically, in organisational studies, the researchers have had two approaches: quantitative versus qualitative (Eisenhardt 1989). Furthermore, a mixed approach requires much consideration in social sciences (Bazelet 2003; Creswell and Clark 2007; Creswell 2009). Choosing either quantitative or qualitative design, or both, is related to time, money, resources and staff (Hathaway 1995). Moreover, the nature of the theory in management plays a key role when choosing an appropriate solution to suggest tentative answers to novel questions.

3.3.1 Quantitative Approach

The quantitative approach can be described as a research strategy that focuses on the importance of both numbers and statistics in data collection and data analysis. Typically, this strategy is based on these essential principles: (1) the deductive approach can lead to relationship between the theory and researcher to test the existing theory, (2) the practices and standards of the natural sciences, namely positivism should lead the researcher (Bryman and Teevan 2005) The deductive approach is represented as a key factor of positivism (Creswell 1994; 2009; Cavaye 1996; Carson et al. 2001). The researcher, according to deductive theory should deduce the hypothesis (hypotheses) that must then be empirically tested. Moreover, the concepts must be translated into researchable entities and the data to be collected must be related to the concepts from which hypothesis is derived (Bryman and Teevan 2005). Therefore, quantitative design which is associated with the positivist

epistemology can be described as a logical and structure approach. A hypothesis is formulated based on the expectation about probable, causal link between variables. It focuses on the methodology, procedures and statistical techniques to test the validity of measurements of the study. Measurement and statistical techniques are used to analyse data and to determine the relationships between variables. And finally the findings can be quantified (Eldabi et al. 2002; Carson et al. 2001).

3.3.2 Qualitative Approach

The qualitative research can be described as research strategy reliant on word rather than quantification, both in data collection and analysis (Bryman and Teevan 2005). It includes a set of interpretative and material practices that make the world noticeable and understood by these practices (Densin and Lincoln 2000). Qualitative research is descriptive and inferential but that does not mean it is without scientific methods (Gilham 2000). It can be described as “an array of interpretative techniques which seeks to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in a social world” (Van Maanen 1983, p.9). There are three main principles of qualitative research: (1) inductive approach can lead to the relationships between the theory and research in order to generate theory (theories), (2) the social words can be only understood by individual’s interpretation, not by the practice and standards of natural sciences, (3) the social reality can be emerged and understood by the individual’s creation (Bryman and Teevan 2005).

A qualitative approach relates to subjective study and emphasizes the role of a researcher's experiences as a good way to understand the social behaviour of the phenomenon. Thus, the qualitative approach aims to understand the phenomenon according to the subject's perspective rather than the observer's perspective. Accordingly, this approach offers flexibility through the understanding of the social setting (Eldabi et al. 2002). The interpretative paradigm associated with qualitative approach enables researchers to develop categories and meanings from data through an interactive process starting from developing an initial understanding framework for most aspects of the phenomenon under investigation (Kaplan and Duchon 1988).

3.3.3 Research Approach (Design) Position of the Research:

Quantitative Approach

Since the research project involves the use of theory and the link between theory and research design is very important, the researcher should understand the research approaches. This is whether the researcher should use the *deductive* approach, in which the theory is developed and hypothesis or hypotheses and generate a research strategy to test the hypotheses, or the *inductive* approach, in which the data is collected and theory is developed as the result of the data analysis. Researchers attach these approaches to different research philosophies, deduction owes more to positivism whereas induction to interpretivism (Carson et al. 2001; Saunders et al. 2007).

Deductive approach is underlined by quantitative methods. “It is the dominant research approach in the natural sciences, where laws present the basic of explanation, allow the anticipation of phenomena, predict their occurrence and therefore permit them to be controlled” (Collis and Hussey 2003 cited in Saunders et al. 2007, p. 117). This study shows hypothesised relationships and expressing the hypotheses in operational terms which explains the inference of relationships between variables. To test these hypotheses, it requires the collection of quantitative data. In addition to that, another characteristic of deductive approach is to operationalise in a way that enables facts to be measured quantitatively through statistical tools and techniques. And generalisation is the last characteristic of deduction in order to generalise statistically, it is essential to select samples of sufficient numerical size (Carson et al. 2001).

At this position, both quantitative and qualitative methods are appropriate, but the focus is on quantitative methods. The choice of research strategy will be guided by research question(s) and meet objectives, as well as philosophical underpinnings. The way that researchers ask research questions results in either descriptive, exploratory, or explanatory answers (Saunders et al. 2007). The present research is an explanatory study which explains relationship between variables.

3.4 Research Objectives

There are three inter-related research objectives of this study (1) to examine what marketing capabilities enhance firm innovative capabilities; (2) to extend the analysis of marketing capabilities from internal development to a firm's external network relationships and (3) to understand how digital technology serves as an enabler between marketing and innovative capabilities. These objectives have been derived from the literature gaps based on theoretical underpinnings of market orientation, resource-based view and network perspective of the IMP group researchers. Specifically, this research attempted to test the following research questions:

- What marketing capabilities firms develop in business relationships for enhancing innovation?
- What is the relationship between specific marketing capabilities and innovative capabilities?
- What is the relationship between innovative capabilities and firm performance through the development of marketing capabilities?
- What is the extent of digital technology in influencing the relationship between marketing capabilities and innovative capabilities?
- What is the extent of learning orientation in influencing innovative capabilities through marketing capabilities?

3.5 Strategy Position of the Research: Survey

There are critical steps in designing a quantitative method for a research, with focus on survey and experimental modes of inquiry. As deductive approach suggests that examining relationships between and among the variables in order to answer hypotheses through surveys or experiments (Creswell 2009; Babbie 1990). The survey strategy is a popular and common in business and management research. A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or makes claims about the population (Creswell 2009). The purpose of survey research is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude or behaviour of this population (Babbie 1990). The survey is the preferred type of data collection procedure for the study as the economy of the design and the rapid turnaround in data collection. The survey strategy adopted in this research is influenced by the nature of research strategy and to gain understanding of possible reasons for particular relationships between variables and to produce models of these relationships (Fowler 2002; Saunders et al. 2007). As the proposed conceptual framework (see Figure 1.1) demonstrates, this research proposes an empirical setting to investigate the theoretical relational path that is drawn from the literature and test this through hypotheses. The conceptual framework seeks to quantify the data (Malhotra 2002) for the purpose of explaining the hypothesised relationships. The survey strategy is appropriate for the present study since it allows the researcher to

collect quantitative data which can be analysed quantitatively and the data collected using survey can be provide possible reasons for particular relationships (Saunders et al. 2007).

As mentioned in the earlier section, this research approach provides concise answer to the research question through the acquisition and analysis of information that can be aggregated from the survey data (Beedles 2002 cited in Saleh 2006). The main strength of the surveys is to allow the collection of large amount of data which is often obtained by using a questionnaire administered to a sample (Saunders et al. 2007). Since the result can be projected to the entire population (Davis 2000), using a survey strategy gives researcher more control over the research process. It will be with a lower cost and once researchers collected the data, they will be independent. Indeed, the researcher should need to pay attention to the sample whether it is representative or not, designing and piloting data collection instrument and analysing the results with a consistent software. In addition to this, research design underlies the deductive models that confirm hypothesised relationships or consequences of the relationships.

The proposed conceptual framework attempts to investigate the hypothesized relationships based on the literature review. The conceptual framework seeks to quantify the data (Malhotra 2002) for the purpose of explaining the hypothesised relationships. The survey strategy is consistent with the extant literature about previous studies on marketing capability and innovation.

As the research objectives suggest, this research was conducted using a quantitative research design and approach to generalise the findings based on statistical analysis of the findings. Since the research deals with innovative capabilities and the use of digital technology that can be applied to business organisations across different industry sectors, the sample of population of this study is drawn from different industries in the UK economy including profit organisations. This increases generality of the findings as well as avoid potential bias of informed wisdom about the relevance of marketing capabilities in specific industries. Although industry characteristics may determine choice of different marketing capabilities, the empirical findings of this study can be categorised into different industries following the precedent of past studies (e.g., Brouthers et al. 2002; Henisz and Macher 2004). In addition, the interest in general population of business alleviates the difficulty of obtaining a satisfactory sample size for statistical analysis in survey research.

3.6 Research Time Horizon

Time horizons can be divided into two types cross-sectional/snapshot and longitudinal/ diary study (Sekaron 2005; Saunders et al. 2007; and Hussey and Hussey 1997).

Cross sectional studies are positivistic methodologies which obtain information on variables in different contexts (Hussey and Hussey 1997). Similarly,

Saunders et al. (2007 p: 148) define cross sectional study as “a particular phenomenon (or phenomena) at a particular time”. These studies are conducted when they are constraints of time and resources. According to Saunders et al. (2007, p: 148), most research projects conducted for academic courses are necessarily time constrained. However, longitudinal studies explore “the dynamics of the problem by investigating the same situation or people several times over a period in which the problem runs its course” (Hussey and Hussey 1997, p: 63). Especially for the academic courses, a longitudinal study is unlikely to be appropriate because it does not allow sufficient time to collect primary data (Collis and Hussey 2003, p: 65).

This research is a cross sectional study. This approach was considered as more applicable to this study as survey strategy had been employed for the research, and also doctoral research is normally constrained by both finance and time (Saunders et al. 2007).

3.7 The Primary Research

The research examines the impact of marketing capability on innovative capability and ultimately, on firm performance. The relationship between marketing capability and innovative capability is mediated by digital technology in addition moderated by learning orientation. Since this research deals with innovative capability and the use of digital technology that can applied to business organisations across different industry sectors, the sample of population of this study is drawn from different industries in the UK economy including profit organisations.

3.7.1 Sampling

A research sample is a large or smaller group of people or companies that is representative of the population for the research (Oppenheim 1996; Kinnear and Taylor 1996; Horn 2009). Since surveying all population might be costly and impossible (Gill and Johnson 2002), samples enable an accurate portrayal of the research population, and provide a cost effective way to generalise the research (Gill and Johnson 2002; Creswell 2009). In this section, the target population, sampling technique and sample size were defined.

3.7.1.1 Target Population

As this research deals with the innovative capability and the use of digital technology that can be applied to business organisations across different industry sectors, the sample population was drawn from different industries in the UK economy including profit organisations. Target population defined by the aggregate of all elements that are defined before selecting the sample (Malhotra 2007). Therefore all profit companies operating in the UK across different sectors were included in the target population. A random sampling of all the population from the Dun and Bradstreet Business Directory had been performed.

3.7.1.2 Sampling Technique and Sample Size

The unit of analysis for this research was a firm including its behavioural outcomes, knowledge of connected business relationships, and possession of capabilities and technologies. The choice of sampling techniques depends on the feasibility and sensibility of collecting data to answer research question(s) and to address research objectives from the entire population. A random sampling of all the population from the Dun and Bradstreet Business Directory had been performed in order to generate an adequate response to satisfy statistical significance of the population of interest as well as develop a representative sample of the study for the business population of interest. This increases generality of the findings as well as avoid potential bias of informed wisdom about the relevance of marketing capabilities in specific industries. Although industry characteristics may determine choice of different marketing capabilities, the empirical findings of this study can be categorised into different industries following the precedent of past studies (e.g., Brouthers et al. 2002; Henisz and Macher 2004). In addition, the interest in general population of business alleviates the difficulty of obtaining a satisfactory sample size for statistical analysis in survey research.

“The standard and sophisticated statistical analysis including structural equation modelling recommends sampling of 200 as fair and 300 as good” (Tabahnick and Fidell 1996). Therefore, this study aimed to collect approximately 300 usable samples that would be sufficient to satisfy the proposed testing and analysis and also recommendations.

3.7.2 Questionnaire Development

The field research of this study consisted of three sub-stages. Firstly, it involved a mail survey and pilot interviews of respondents to examine the face validity of the measurement items as well as appropriateness and clarity of the research questionnaire. The feedback obtained from this stage allowed the research to refine and/or adapt the measurement items and questions better capture the respondents/firm's perspective of marketing capabilities through its network relationships. The third stage carried out a full-scale empirical survey of 1200 business organisations in the UK.

3.7.2.1 Measurements of Constructs

The measures of the research model were examined following conventional steps of measure validation (Churchill 1979). Prior to construct validation, the content validity of the research instrument was established by grounding it strongly in existing literature and conducting pre-tests. Based on this, DeVellis (1991) recommends an alpha below 0.6 as unacceptable; 0.6-0.65 undesirable; 0.65-0.70 minimally acceptable; 0.7-0.8 respectable; .80-.90 very good; and if much above .90 excellent. In terms of constructs and item reliability, the constructs were selected after the calculation of Cronbach's alpha. If the Cronbach's alpha value was greater than 0.7, the constructs would be accepted. The next step was to examine the possibility of improving Cronbach alpha of at least 0.7 by identifying items in the

inter-correlation matrix that contributed least to the overall internal consistency were excluded as well as those negatively correlated with other items within a scale. Items with a correlation value below 0.10 will be discarded with some studies suggesting that the cut-off value of 0.30 (e.g., Flynn et al. 1994; Chen and Paulraj 2004; Cronbach 1951). This process is repeated to ensure that the constructs included in the target value of Cronbach Alpha 0.70 before moving to the next step of instrument development. The aforementioned process of scale validation (DeVellis , 1991 and Spector, 1992) was applied to the new construct of ‘digital technology’ of this study as well as following Churchill’s (1979) steps instrument development (See Chapter 4 for details).

There are two basic types of validity: (1) *Content validity* which is concerned with the ability of the measures to make accurate predictions and (2) *Construct validity* refers to the extent which the measurement questions actually measure the presence of those constructs that is intended to measure (Saunders et al.2007). In this research, the scales of the constructs that were examined are available in the literature or could be easily derived from previous works. All item constructs were adapted from previous studies and modified to fit to this research. This research contributed some items and measures that are new to the literature and all the items are based on expert opinions. Response rates, validity and reliability can be maximized by; careful design of individual questions, clear layout question form, pilot testing and carefully planned and executed administration (Saunders et al. 2007).

“Common method variance can have substantial impact on the observed relationships between predictor and criterion variables in organizational and behavioural research” (Podsakoff et al. 2003, p.897). Respondents will be asked to rate their organizations on the questionnaire items from 1 “strongly agree” to 7 “strongly disagree”. For this study, construct measures were derived from the previous studies having higher reliability and the content validity of the questionnaire was increased through a pilot test. The digital technology construct were reviewed by industry experts and two academic peers before inclusion in the questionnaire.

Independent Variables : A firm’s network perspective of marketing capabilities (The eight marketing capabilities are pricing, product development, channel management, marketing communication, selling, marketing information management, marketing planning and market implementation) and Digital technology (Mediator).

Dependent Variables: Innovative Capability and Firm Performance.

Control Variables: (1) environmental uncertainty (2) market dynamism.

Moderator: This research examines the relationship between a firm’s network perspective of marketing capabilities and innovative capabilities. After reviewing the literature, learning orientation was considered as a moderator of this research.

Table 3.2: Descriptive Analysis of Variables

Variables	Items	Main references
<u>Network Perspective of Marketing Capabilities</u>	<u>38</u>	Vorhies and Morgan ,2005
Pricing	4	
Product Development	5	
Channel Management	6	
Marketing Communication	5	
Selling	4	
Market Information Management	4	
Market Planning	5	
Market Implementation	5	
<u>Digital Technology</u>	<u>15</u>	New scale created for this specific study.
Organisational Level	3	
Network Level	4	
Marketing Level	4	
Operational Level	4	
<u>Learning Orientation</u>	<u>21</u>	Sinkula, Baker and Noorewier,1997
Commitment to Learning	6	Calantone, Cavusgil and Zhao, 2002
Shared Vision	5	
Open-Mindedness	5	
Intra-organisational knowledge sharing	5	
Variables	Items	Main references
<u>Innovative Capability</u>	<u>6</u>	Tushman and Anderson,1986; Henderson and Clark,1990
Incremental Innovative Capability	3	
Radical Innovative Capability	3	
<u>Company Performance</u>	<u>15</u>	
Overall Performance	3	Jaworski and Kohli,1993
New Product Success	5	Baker and Sinkula,1999
Firm Performance	7	
<u>Market Dynamism</u>	<u>5</u>	Jaworski and Kohli, 1993
<u>Environmental Uncertainty</u>	<u>9</u>	
Technology uncertainty	4	Davis,1993
Competitive Intensity	5	Jaworski and Kohli,1993

The measurement variables are briefly discussed below:

Firm's Network Perspective of Marketing Capability:

The independent variables of marketing capabilities were derived from Vorhies and Morgan's (2005) and Eng and Spickett-Jones (2009) studies regarding the contribution of marketing capabilities to business performance. Previous studies analysed marketing capabilities based on internal marketing resources of a firm. In order to relate a firm's marketing capabilities to external firm relationships, the study adapted the extant scale items to account for network effects, i.e., capabilities arise from more than one relationship. This followed the precedent set by prior studies about network relationships (e.g., Eng 2005, 2008). In addition, the study used several key indicators to ensure marketing capabilities would be assessed from a network perspective. The first is the reference to individual relationships, where there is emphasis on more than one or beyond a dyad relation. Second, there is reference to multiple relationships, in that a firm might be connected to various relations. Third, scale items referred to different relationships of a firm rather than solely based on a focal or dyad relation. Fourth, the reference to collective relationships stressed the presence of more than one party in the development of marketing capability. Finally, scale items account for indirectly connected relationships to ensure that a direct focal relationship may be connected to third parties or other relationships. Importantly, the scale items related to marketing capabilities from a network perspective were assessed and refined during the pilot phase. An actor's viewpoint of its relationships (individual or multiple) may uncover

certain organisational characteristics (e.g., Cullen et al. 2000; Victor and Cullen 1987, 1988). The use of a firm's perspective of its multiple relationships (networks of relationships) is also known as proxy reports (Menon, Bickart, Sudman and Blair, 1995 p. 77). Empirical and theoretical support exists for the use of proxy reports when there is joint participation (relationship) in an event (Anderson and Weitz 1992; Buchanan 1992; Jap 1999).

It is clear in many empirical studies in the context of business markets examine levels of relationships in order to examine a firm's networks of relationships (e.g., Moller and Halinen 1999; Eng 2005). Moreover, this is not uncommon in the business context, as an actor's viewpoint of its relationships (individual or multiple) may uncover certain organisational characteristics (e.g., Cullen et al. 2000; Victor and Cullen 1987, 1988). The use of a firm's perspective of its multiple relationships (networks of relationships) is also known as proxy reports (Menon et al. 1995, p. 77). Empirical and theoretical support exists for the use of proxy reports when there is joint participation (relationship) in an event (Anderson and Weitz 1992; Buchanan 1992; Jap 1999).

Firm's Network Perspective of Marketing Capabilities

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' please rate the importance of the following marketing capabilities relative to your business and competition from your individual relationships (customers, suppliers, technology partners, multipliers).

Pricing

- Developing pricing skills and techniques from individual relationships to respond quickly to market changes.
- Developing knowledge of competitors' pricing tactics through coordination of multiple relationships.
- Developing an effective job of pricing products/services from individual relationships.
- Developing a system from different relationships to monitor competitors' prices and price changes.

Product Development

- Learning from individual relationships to develop new products/services.
- Developing new products/services through coordination of multiple relationships and exploitation of current or future production skills and/or technology.
- Acquiring new technology to develop products/services from different partners.
- Developing knowledge from individual relationships of coordinated new product launches.
- Gaining knowledge of customer needs from different relationships to match new product development.

Channel Management

- Developing good individual relationships with distributors.
- Attracting and retaining collective distribution relationships.
- Gaining knowledge of distributors' partners through coordination of multiple relationships.
- Striving to add value from both directly and indirectly connected relationships to our distributors business.
- Developing multiple partnerships with our distributors and their business partners.
- Aiming to provide high levels of service through coordination of multiple distribution relationships.

Marketing Communication

- Knowledgeable of developing and executing advertising programmes from individual relationships.
- Developing advertising management and creative skills from different relationships.
- Using public relations skills for both directly and indirectly connected relationships.
- Developing brand image skills and positioning for both directly and indirectly connected relationships.
- Knowledgeable in managing company image and reputation.

Market Information Management

- Gathering information about customers and competitors from individual relationship.
- Using market research skills from different relationships to develop effective marketing programmes
- Monitoring customer wants and needs from both indirect and direct relationships and network relationships
- Using marketing research information from different relationships for decision making

Selling

- Training our salespeople from individual relationships.
- Developing sales management planning and control systems from individual relationships.
- Developing selling skills of salespeople from different relationships
- Providing effective sales support to the sales force comprising individual relationships.

Marketing Planning

- Developing marketing planning skills through coordination of multiple relationships.
- Developing the ability to effectively segment and target market of individual relationships
- Developing marketing management skills and processes through coordination of multiple relationships.

- Developing creative marketing strategies through coordination of multiple relationships.
- Developing thorough knowledge of marketing planning processes with individual relationships.

Marketing Implementation

- Knowledgeable in effective allocation of marketing resources through coordination of multiple relationships.
- Developing effective delivery of marketing programmes collectively with different partners.
- Coordinating with individual relationships on how to translate marketing strategies into action.
- Knowledgeable in executing marketing strategies effectively from different relationships.
- Developing a monitoring system for marketing performance through coordination of multiple relationships.

Innovative Capability

The dependent variable of innovative capability was derived from Tushman and Anderson (1986) and Henderson and Clark (1990) studies regarding the contribution of innovative capability to business performance. The innovative capability examined in two which are *incremental innovative capability* and *radical innovative capability*. The questionnaire items are exhibited below.

Innovative Capability

Using a seven-point running scale of '1= very stronger than competition' to '7=very weaker than competition' please rate your organisation's capability to generate the following types of innovations in the products/ services you have introduced in the last five years?

Incremental Innovative Capability

- Innovations that reinforce your prevailing product/service lines.
- Innovations that reinforce your existing expertise in prevailing products/services.
- Innovations that reinforce how you currently compete.

Radical Innovative Capability

- Innovations that make your prevailing product/service lines obsolete.
- Innovations that fundamentally change your prevailing products/services.
- Innovations that make your existing expertise in prevailing products/services obsolete.

Firm Performance

The dependent variable of the research, firm performance, was derived from Jaworski and Kohli (1993) and Baker and Sinkula (1999). The measures include overall performance, overall profitability, Return on Investment (ROI), Return on

Sales (ROS), Return on Assets (ROA) , total sales, growth rate of sales, gross margin, market share and new product success measures. The questionnaire items are exhibited below.

This research used subjective measurement for firm performance as many previous studies even by top scholars or top journals (e.g., Slater and Narver 1990; Dess and Robinson 1984; Greenley 1995; Hooley et al., 1992) used the subjective measures for business research. It would be impractical and if not impossible to obtain actual financial results from companies. Moreover, subjective or perceptible financial performance measures have been shown to more accurate representation due to sensitivity of financial information (Venkatraman and Ramanujam 1986; Dess and Robinson 1984).

Company Performance

Using a seven-point running scale of '1= very good' to '7 =very poor' please rate the following financial results for your firm for the last year.

Overall Performance

- Overall performance in your organisation.
- Relative to competition overall performance in your organisation.
- Overall profitability.

Using a seven-point running scale of '1= very high' to '7 =very low' please rate following comments for your organisation served market segment over the past 3 years.

New Product Success

- New product introduction rate relative to largest competitor.
- New product success rate relative to largest competitor.
- Degree of product differentiation.
- First to market differentiation.
- New product cycle time (i.e., inception to rollout) relative to competition.

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' please rate following comments for your organisation firm performance.

Firm Performance

- Our return on investment (ROI) for the last three years has surpassed our main competitors' performance
- Our return on assets (ROA) for the last three years has been above our industry average.
- Our return on sales (ROS) for the last three years has been higher than our main competitors.

Digital Technology

Digital technology is treated as a mediator. In order to examine the influence of digital technology on innovation, it is necessary to develop a suitable instrument to measure digital technology. The influence of digital technology permeates firm and network activities. In order to examine digital technology in the context of marketing capability, it is also important to consider the influence of digital technology on operational and marketing functions. Therefore, measurement of digital technology comprised four variables related to digital technology at the firm and network activities and operational and marketing functions.

According to (Spector 1992), there are four characteristics that make a scale a summated rating scale. The number of items is an important factor. To the scope of combining or summing the findings based on these items, multiple of them are required. Second, each property measured by an item should vary quantitative and not qualitative as the goal is to obtain an underlying, quantitative measurement continuum. Third, in contrast to a multiple-choice test there is should be no "right" or "wrong" answer. This is the reason why these kinds of measurements cannot be applied on test for knowledge or ability. Finally, each item in a scale is a statement, and respondents are asked to give ratings about each statement.

There is a wide spectrum in which summated rating-scale format can be applied due to the various benefits it has (Spector, 1992). Moreover,

another quality of the summated rating scale is the fact that it is a relatively cheap and easy to develop tool. The writing of items is straightforward, and the initial development of the scale requires only 100 to 200 subjects. Finally, in case of well-posed items, a summated rating-scale can be proven time efficient as well, becoming like that appealing for the respondents (Spector, 1992).

This study followed established procedures used for summated rating scale development and validation (Churchill, 1979; Gerbing and Anderson, 1988; Spector 1992; Smith, 1999). The design of a summated rating scale can be divided in the following seven steps: define of the construct to be measured, design the scale, generate an item pool page layout, administer the scale, check the data, and coefficient alpha.

In this study, a tool was designed based on scale levels that would represent the basic levels of a firm's business process. A business process is the combination of a set of activities within an enterprise with a structure describing their logical order and dependence whose objective is to produce a desired result (Aguilar-Saven, 2003). Business process can be divided into various levels or sub-processes in an organization, often in a hierarchical way, with each level drafting plans to achieve the goals set in the level directly above. This study considers the four basic pillars (or sub-processes) of a firm's business process to be the following: the organisation of every process and

distribution of tasks, the communication between the firm's management sections and its commercial and technological partners, the firm's policy for the interaction and communication with the customers and finally the operation of the firm, which includes the generation and process of knowledge, as well as the devices and approaches used to provide the services (Aguilar-Saven, 2003). Based on this consideration, a tool consisted of four scale levels was designed in order to examine the impact of digital technology on innovation of business process. The chosen four scale levels are the following: organisational level, network level, marketing level and the operational level. The rationale behind choosing these four levels was to encompass the basic sub-processes of business process in our study. Each of the levels represents one of the aforementioned basic levels of a business process. Each level is very important and significant for an efficient business processes, being at the same time highly interrelated to each other.

After choosing our scale levels, the next step in the scale development procedure was to develop a pool of items to capture the four levels of digital technology based on an extensive review of the literature (Hinkin 1995). Initially, a set of 15 items were generated to tap into the digital technology construct. Items were generated from the literature, focus groups and depth interviews. The 15 items were further reviewed by industry experts and two academic peers before inclusion in the questionnaire. In particular, Eng's (2004, 2008) 13 items of Internet drivers instrument concerning digital economy was examined. This provided development of items for the firm and

network activities (levels). In addition, two depth interviews and one focus group were conducted with managers from a random selection of industries. The depth interviews involved managers from a telecommunication company and an electronics manufacturing company. The purpose of the interviews was to establish relevance of the pool of items generated. The feedback obtained from the interviews was mainly used to improve wordings and rephrasing of the questions. In particular, most of the questions were illustrated with some examples to ensure clarity of meanings.

The focus group consisted of eight managers from different business sectors. The focus group was conducted at the university premises with an informal setting. During the focus group, managers were asked to discuss about the application of digital technology which would mobilise marketing capabilities and enhance innovative capability. Managers gave a range of answers in different settings and functional areas, and hence, the measurement of digital technology includes organisational, network, operational and marketing levels. The comments surrounding the focus group discussion revolve around “electronic integration of services, communications and information sharing, remote and digital technologies, software applications, electronic customer fulfilment”.

Information from the depth interviews and focus group was then used to pursue exploratory aspects of the digital technology construct and generate relevant or new scale items based on theory. The item pool was then reviewed

by two academics, one in strategic management and the other in marketing field who were asked to comment on the relevance, clarity and conciseness for each of the items and to point out any additional ways of tapping the construct (De Vellis 1991). As a result of this process, a pool of 15 items was generated for inclusion into the survey instrument (See Appendix One).

The designed questionnaire

The basic question applied to each of the questionnaire items is the following:

Using a seven-point running scale of '1= strongly disagree' to '7 =strongly agree' to what extent do the following statements apply to your organisation?

The 15 items consist of the four scale levels. Three of them belong to the operational level, three to the network level, three to the marketing level and three to the operation level. They are exhibited below.

Organisational level

- We have been integrating our activities, functions and processes in this organisation

We have been using integrated systems of communications and technology in this organization

We have been sharing digital technology across functions, departments and units in this organisation

Network level

We have been using an integrated information system with our different business partners.

We have been sharing databases with our different business partners (e.g., extranet).

We have been participating in electronic platform for business or consumer exchange (e.g., e-marketplaces).

We have been leading and/or adopting new technology to cooperate and compete in our business.

Marketing level

We have been using digital technology to satisfy customer needs and compete in the marketplace.

We have been using electronic or Internet-based systems to conduct our marketing activities (e.g., electronic customer relationship management).

We have been using integrated market research information systems to facilitate information sharing across functions, departments and units in this organisation.

We have not been servicing our customers through the Internet (e.g., website, customer fulfilment).

Operational level

We have been monitoring our business activities using technology (e.g., RFID, EPOS).

We have been using remote technology applications to enhance our competitiveness (e.g., location-based services, mobile services).

We have been using digital or technological devices to facilitate communications in this organisation (e.g., free internal messaging services).

Learning Orientation: There have been several studies that examined the influence of learning orientation on innovation and firm performance (Verona 1999; Thomson, 1967; Hurley and Hult 1998; Slocum et al. 1994; Chaveerug and Ussahawanitchakit 2008). For this study learning orientation is a moderator. It is hypothesised the higher level of learning orientation, the stronger relationship between a firm's network perspective of marketing capabilities and innovative capability also firm performance. Learning orientation has four dimensions; commitment to learning, shared vision, open-mindedness and intra-organizational knowledge sharing (Day 1991, 1994; Sinkula et al. 1997).

The scale for the measurement of learning orientation was derived from Calantone et al.'s (2002) and Sinkula et al.'s (1997) studies. The questionnaire items are exhibited below.

Learning Orientation

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' to what extent do the following statements apply to your organisation?

Commitment to Learning

- Managers basically agree that our organisational ability is the key to our competitive advantage.
- The basic values of this organisation include learning as key to improvement.
- The sense around here is that employee learning is an investment, not an expense.
- Learning in my organisation is seen as a key commodity necessary to guarantee organisational survival.
- Our culture is one that does not make employee learning a top priority.
- The collective wisdom in this organisation is that once we quit learning, we endanger our future.

Shared vision

- There is a well-expressed concept of who we are and where we are going as a business unit.
- There is a total agreement of promoting learning amongst different units or department's vision across all levels, functions, and divisions.
- All employees are committed to the goals of this organisation.

- Top leadership believes in sharing its vision across all units, functions, departments including employees at bottom levels.
- We do not have a well-defined vision for the entire organisation.

Open-Mindedness

- We are not afraid to reflect critically on the shared assumptions we have about the way we do business.
- Managers in this organisation do not want their “view of the world” to be questioned.
- Managers encourage employees to “think outside of the box.”
- An emphasis on constant innovation is not a part of our corporate culture.
- Original ideas are highly valued in this organisation.

Intra-organisational knowledge sharing

- There is a good deal of organisational conversation that keeps alive the lessons learned from history.
- We always analyse unsuccessful organisational endeavours and communicate the lessons widely.
- We have specific mechanisms for sharing lessons learned in organisational activities from department to department (unit to unit, team to team).
- Top management repeatedly emphasizes the importance of knowledge sharing in our company.

- We put little effort in sharing lessons and experiences.

Control Variables

Market Dynamism

The measurement scale of market dynamism was derived from the study of Jaworski and Kohli (1993). The questionnaire items are exhibited below.

Using a seven-point running scale of ‘1= strongly agree’ to ‘7 =strongly disagree’ to what extent do the following statements apply to your organisation regarding the form, care of and use of relationships to partners (customers, suppliers, technology partners, multipliers)?

- Our customers’ product preferences change quite a bit over time
- New customers tend to have product-related needs that are different from those of our existing customers.
- Our customers tend to look for new products all the time.
- Our customers tend to have stable product preferences.
- We are witnessing changes in the type of products/services demanded by our customers.

Environmental Uncertainty

Using a seven-point running scale of '1= strongly disagree' to '7 =strongly agree' to what extent do the following statements apply to your organisation's environment?

Technology uncertainty

- Our industry is characterised by rapidly changing technology.
- If we don't keep up with changes in technology, it will be difficult for us to remain competitive.
- The rate of process obsolescence is high in our industry.
- The production technology changes frequently and sufficiently.

Competitive intensity

- There is high number of competitors.
- There is intense price competition
- There is high competitive intensity in this industry.
- Our major competitors possess strength in distribution system
- Our major competitors possess strength in advertising.

3.7.2.2 Questionnaire

One of the common scale used in the collecting opinion data is the Likert rating scale in which respondents are asked how strongly they agree or disagree with specific

statements usually on a four, five, six or seven-point rating scale (Saunders et al. 2007). The Likert scale is one of the most common attitude-scaling techniques which allow respondents to express their feelings (Churchill and Brown 2007). Respondents are asked to indicate their degree of opinions with each of the statements in the questionnaire is given a numerical scoring.

For this research all the items relating to the constructs in the questionnaire were measured using seven-point Likert-scales ranging from 1 to 7 (except for the company summary) please see Appendix One for the questionnaire of the research. It is crucial to include both positive and negative statements in order to make sure that respondents read and answer the each question and then tick the box which expresses their opinions (Saunders et al. 2007). Therefore some items were reversed (R) in the questionnaire in order to avoid response bias.

In this research, the scales of the constructs that are examined are available in the literature or could be easily derived from previous work. The scale items for this research have been empirically validated in previous studies except the digital technology scale. The latter has been developed following the Churchill (1979) scale development procedure as well as DeVellis (1991) and Spector (1992).

The measurement validation process followed conventional methods to assess internal consistency of items through the calculation of Cronbach's alphas, adjusted item-to-total correlations and statistical evaluation (Churchill, 1979), as well as employed confirmatory factor analysis for assessing the construct validity

and unidimensionality of an instrument (Bagozzi et al. 1991; Gerbing and Anderson 1988).

Prior to construct validation, the content validity of the research instrument was established by grounding it strongly in existing literature and conducting pre-tests. In terms of constructs and item reliability, the constructs were selected after the calculation of Cronbach's alpha. If the Cronbach's alpha value was greater than 0.7, the constructs were accepted. The next step was to examine the possibility of improving Cronbach's alpha of at least 0.7 by identifying items in the inter-correlation matrix that contributed least to the overall internal consistency was excluded as well as those negatively correlated with other items within a scale. Items with a correlation value below 0.10 were discarded with some studies suggesting that the cut-off value of 0.30 (e.g., Flynn et al. 1994; Chen and Paulraj 2004). This process was repeated to ensure that the constructs included in the target value of Cronbach's Alpha 0.70 before moving to the next step of instrument development. The aforementioned process of scale validation was applied to the new construct of 'digital technology' of this study as well as following Churchill's (1979) steps instrument development.

After careful selection of measures derived from literature and expert opinions, the final questionnaire was developed which consisted of participant informant sheet and cover letter and followed by three sections (see Appendix One). Since it is critical for the researcher to begin the questionnaire by explaining reasons and provide guidance in how to fill the questionnaire (Saunders et al. 2007), the participant information sheet and a cover letter were provided in the beginning of the

survey. In this information sheet, the objectives of the research, participants, confidentially, key terms of the research and additional information on how to fill the survey and contact information were provided.

The first part (section A) of the survey focused on the main research area i.e. company performance; Firms' network perspective of marketing capabilities, and innovative capability (see Appendix One). The cronbach's alpha for each construct is shown and demonstrating a degree of internal consistency for the scales which were above the 0.70 threshold recommended by Peterson (1994).

The second part (section B) of the survey focused on constructs such as learning orientation, digital technology, environmental uncertainty which included technological turbulence, competitive intensity and finally market dynamism. The final part of the survey focused on the key information of company profile such as firm size, industry type and employer numbers. Once the final questionnaire was ready, the researcher conducted a pilot test for questionnaire refinements and further recommendations.

3.8 Pilot Research

Pilot research tests the research design with subsample of respondents who have characteristics similar to those in the main sample to be surveyed. Since it is difficult to predict how respondents will interpret and react to questions, it is critical to

conduct a pilot study before the main survey which enables to identify and correct questionnaire problems (Gill and Johnson 2002). Pilot research can save time and money for the whole research if it is done adequately right from the beginning (Oppenheim 1996).

3.8.1 Pilot research objective

The main objective of pilot research is to ensure that the research questionnaire can be operationalized in a consistent and reliable manner to gather the data. The process of pilot research can be divided into related stages of obtaining feedback from academic peers and industry experts. The latter have been selected through the researcher's contacts of former MSc and MBA graduates who are working in the country. This convenience sampling of managers is considered practical and provided relatively quick feedback to the research. A total of 14 managers participated in the pilot research. In addition, two academics as well as the research supervisor provided feedback for the research questionnaire.

In the beginning of the pilot test, the aim of the questionnaire was explained to the managers. The researcher has asked managers if she/he found any difficulties in answering questions to put a mark or a comment and we could discuss it when he/she finished. My aim was to time the questionnaire and see the reactions of the participants while reading the questionnaire.

Table 3.3 shows a summary of the feedback obtained and modifications carried out after the pilot research. The final research questionnaire has also been reviewed by two industry experts, and approved internally with the research supervisors and after the transfer examination viva.

3.8.2 Recommendations for the questionnaire

All the constructs and questions which sufficiently detail all the aspects of the research problem should be included in the research questionnaire (Gill and Johnson 2002). After the feedback and discussions of the pilot research, several suggestions were registered such as modifications, deletions of items, refinement of wording.

- As expected all the participants mentioned that the questionnaire is too long which might discourage many people from participating. It was not feasible to make the questionnaire much shorter, given the number of constructs measured. However, I tried to edit the questionnaire to remove needless spaces and to remove some headings to reduce the number of pages. Consequently, I changed this information indicating that the questionnaire should take no longer than 20 minutes.
- Some respondents were confused by market turbulence and demand uncertainty constructs. They were not able to answer these questions and

these constructs were deemed inappropriate. These constructs were taken out from the survey due to their inapplicability to the target participants.

- For clarity, the last part of the questionnaire (company profile) was re-organized and some company profile questions were deleted as a result of pilot research.

Generally the tool was found very effective and understandable by the participants. The contact details of the researcher were added at the end of questionnaire so that respondents could easily reply through and obtain feedback if necessary.

As shown in Table 3.3 below, most of the modifications for the questionnaire are concerned with refinements of wording and deletions of some of the items as they were irrelevant in terms of analysing marketing capabilities and digital technology.

Table 3.3: Modifications of the pilot research

Demand Uncertainty	Modifications	Reasons
<ul style="list-style-type: none"> a. Our business has a high percentage of variation in demand. b. Our demand fluctuates drastically from week to week. c. We keep weeks of inventory of the critical material to meet the changing demand. d. The volume and/or composition is difficult to predict 	Deleted	Participants were not able to answer these questions and these constructs were deemed inappropriate. These constructs were taken out from the survey due to their inapplicability to the target participants.
Market Turbulence	Deleted	Participants were not able to answer these questions and these constructs were deemed inappropriate. These constructs were taken out from the survey due to their inapplicability to the target participants.
Company Summary	Deleted	For clarity, the last part of the questionnaire (company profile) was re-organized and question 7 and question 10 were deleted as a result of pilot research.
<p>Question 7. How many years have you been in this department or functional area?</p> <p>In how many other department or functional areas have you worked for this company?</p> <p>Question10. What was your 2009 annual sales turnover?</p>	Deleted	For clarity, the last part of the questionnaire (company profile) was re-organized and question 7 and question 10 were deleted as a result of pilot research.

3.9 Data Collection

A research questionnaire was developed for the purpose of data collection. Most of the constructs (Figure 1.1), and their measurement scales and items have been empirically validated in the literature. The design of the questionnaire followed the guidelines documented in the literature in terms of ensuring reliability and consistency in questionnaire or survey administration (Saunders et al. 2007). This could also increase internal validity related to the ability of the questionnaire to measure what is intended to measure.

There are two types of questionnaire; (1) *Self-administered questionnaires* which are usually completed by the respondents and (2) *interview-administered questionnaires* which are recorded by interview on the basis of each respondent's answers. This study will use self administered questionnaires as it aims to get the data electronically using internet (*internet-mediated questionnaires*), posted to the respondents who will return after they completed (*postal or mail questionnaire*) and for some companies delivered by hand to each respondent and collected later (*delivery and collection questionnaires*). By using these three types of methods, the response rate and reliability have been increased.

As noted in the sampling frame, the sample of this research is drawn from the business population of all business organisations in the UK. This increases generality of the findings as well as avoid potential bias of informed wisdom about the

relevance of marketing capabilities in specific industries especially innovative capability is likely to be relevant for any business and/or there is no prior research about the relationships examined. Although industry characteristics may determine choice of different marketing capabilities, the empirical findings of this study can be categorised into different industries following the precedent of past studies (e.g., Brouthers et al. 2002; Henisz and Macher 2004). The interest in overall population of business is not uncommon in empirical research on business networks. It could alleviate the difficulty of obtaining a satisfactory sample size for statistical analysis in survey research.

There is also no prior knowledge or bias that certain industries/sectors would rely on marketing capabilities and digital technology to enhance their innovative capability. The approach of an objective research especially for unexplored phenomenon would be to let the results be the judge of what marketing capabilities are relevant for which industries and whether the results tell us more about certain industry-specific application of digital technology. The questionnaire was designed to capture this.

The field research of this study consists of three sub-stages. The first involved a mail survey and pilot interviews of respondents to examine the face validity of the measurement items as well as appropriateness and clarity of the research questionnaire. The feedback obtained from this stage allowed the research to refine and/or adapt the measurement items and questions better capture the respondent/firm's perspective of marketing capabilities through its network

relationships. The third stage carried out a full-scale empirical survey of 1200 business organisations in the UK. Based on the feedbacks of pilot research, it was expected that the participation could be low regarding to the length of the survey. A random sampling of all the population from the Dun and Bradstreet Business Directory has been performed in order to generate an adequate response to satisfy statistical significance of the population of interest as well as develop a representative sample of the study for the business population of interest. A cover letter and information sheet was sent to business organisations in order to explain the study and ask them to participate. The researcher created a database of the 1200 business organisations that includes information about the organisations such as telephone numbers, addresses, emails, person name that the survey targeted to which was the marketing managers and CEOs. A data collection report was developed to track the records using different modes of data collection such as mail, electronic mail and telephone (Churchill and Brown 2007). Initially, the plan was to collect the research data via mail and electronic mail. Nevertheless, as the response rate for these two methods was not enough. Third method has been used which is to phone or visit companies personally asking managers for cooperation and participation in the survey. There were many rejection letters that are sent back to the researcher. The reasons were generally they did not allow to provide disclose information, they were busy, they did not have time and as a company policy they do not participate in research. The researcher faced problems with the phone interviews and visits to the companies as it was really hard to convince managers to participate in the survey over the phone.

3.9.1 Identification of Informants

A procedure was applied to identify an appropriate informant who could provide a valid response to the survey. The following criteria have been used to increase relevance of the research to the target companies:

- Companies have a minimum of 20 employees to ensure the presence of organisational structure for decision-making (Spanos and Lioukas 2001)
- Companies have been in business operations for at least five years in that their capabilities would have been established.
- Companies operate in a competitive environment, which necessitates development capability and survival in the marketplace.
- Companies' senior executives would be the target respondents particularly those responsible for marketing strategy (e.g., marketing and strategy directors) because they have an overall understanding of the process and implementation of marketing strategy related to allocation of marketing resources as well as those related to supporting marketing capability such as technological resources.

The criteria were developed based on the pilot research as well as review of the literature in terms of the context of digital technology and capability.

3.9.2 Survey Response

Primary data was collected over a seven-month period. First surveys were sent to the business organisations by mail. Then there was a three week response waiting period. After this period, surveys were sent to the business organisations which did not reply to the mail survey. The researcher also called some business organisations which were practical to visit in terms of location and arrange meetings in order to complete the surveys with the participants. Out of 1200 participants who the surveys sent to, 346 of them participated in the research. There were many rejection letters that are sent back to the researcher. The reasons were generally they did not allow to provide disclose information, they were busy, they did not have time and as a company policy they do not participate in research.

At the end of the period, 346 surveys were received (a 28 percent response rate). However, 33 of them were incomplete which were excluded from the study, leaving 313 useable responses. Furthermore, in order to obtain valid responses as a controlling procedure was applied to clarify the key informants eligible to participate in the study and 13 surveys were excluded from the study. Thus, 300 surveys were remained for the analysis.

3.9.3 Characteristics of the Study Sample

From 300 survey sample only 159 (53%) of respondents replied the mail survey that was sent to them. 123 (41%) of the respondents preferred to reply the survey by electronic email. And the last 18 (6%) surveys were collected by interviews and phone interviews which have been arranged during the data collection process.

In terms of company size, the same criteria used by US researches had been followed; small with less than 50 employees, Medium with more than 50 employees and less than 500 employees, and large with 500 employees and above. Companies employing less than 50 employees represented 39%, companies with more than 50 employees to 500 employees represented 29.7 %, and finally large companies employing more than 500 employees represented 31.3 % of the respondents.

3.10 The Credibility of Research Findings

A good measurement of a study should be based on three critical issues: reliability, validity and generalisation (Zikmund 1991). Reliability refers to which the measures can provide result without error and then yield consistent results (Zikmund 1991). “Repeating a research study to test the reliability of the results is known as replication and is very important in positivistic studies where reliability is usually high” (Hussey and Hussey 1997 p: 57).

In this research, reliability was estimated via internal consistency and Cronbach's Alpha and validity was estimated with the factor analysis and intercorrelations between constructs. Principal components analysis with Varimax rotation and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970) and Bartlett's test of sphericity were deemed appropriate. It has been taken to the consideration that reliability issues might arise so in order to overcome the threat it was important to design the questionnaire carefully to make sure that if any weaknesses occur they have to be overcome. For this reason, pilot test were used in order to increase reliability. The details of the reliability test will be discussed in Chapter Four in section 4.4.

On the other hand, validity was also taken into account. Validity addresses the problem and determines whether the measure can measure what is supposed to measure or not (Zikmund 1991). Research errors, such as faulty research procedures, poor samples and inaccurate or misleading measurements can reduce validity. Under the validity concept, many types were taken into account; content, construct and discriminant validity (Zikmund 1991; Bryman and Teevan 2005; Hair et al. 2006; Pallant 2006). Content validity which considers an essential initiative process (Bryman and Teevan 2005) was established by asking and discussing with people to determine the best questionnaire (see section pilot study). Construct validity which involves a deduction of propositions from theory relevant to the concept (Bryman and Teevan 2005). Construct validity was assessed with the guidelines outlined by Churchill (1979) and Gerbing and Anderson (1987). Since

most of the measurement scales have been modified from prior studies, the factor structure (through principal components) was examined for each scale. Discriminant validity is concerned with whether a construct shares more variance with its indicators than it shares with other constructs in a model (Munstermann et al. 2010). Discriminant validity was used to check the unidimensionality of the item of the scale (Munstermann et al. 2010). Exploratory factor analysis was used to check the discriminant validity which considers highly used technique to measure the unidimensionality of the items (Munstermann et al. 2010).

Generalisation is concerned with the applications of research results to cases or situations beyond those examined those examined in the study (Collis and Hussey 2003, p.59). It is generally referred to the extent to which findings can be generalized (Saunders et al. 2007).

Random error tends to “attenuate the observed relationships among variables in statistical analyses and may induce errors in inference. Under some circumstances, random error even inflates parameter estimates” (Bagozzi 1991). Method variance may also bias results by inflating the observed relationships among variables measured with common method.

Because measurement errors (i.e, Random errors and method variance) provide potential threats to the validity of the research findings, it is important to validate measures and disentangle the distorting influences to these errors before testing the theory (Bagozzi 1991). This can be achieved by using multiple measures

and multiple methods in measurement (Campbell and Fiske 1959). Using a single measure does not permit one to take the measurement error into account in analyses. Similarly, with a single method one cannot distinguish substantive (i.e, trait) variance from unwanted method variance, because each attempt to measure a concept is contaminated by irrelevant aspects of the method employed.

3.11 Summary

Building on the theoretical bases of the literature review and concepts of the conceptual model, this chapter has explained and investigated the methodological framework of the research. This section has provided the foreknowledge for the methodology of this research by examining the research design of the study. In this chapter, different research philosophies, approaches and strategies were examined and a positivism- deductive research approach was chosen for this research. The thought process behind the choice of a quantitative methodology used in this study has been examined. In the light of the research objectives and the knowledge from previous studies, the survey strategy appeared to be the most suitable strategy to obtain the data required. It presents the most suitable data analysis that is planned to use in the research. Due to the financial and time constraints associated with doctoral research, a questionnaire was used a survey technique and this was carefully pilot tested. Then, the primary research was undertaken and sampling process and issues of credibility in research such as reliability, validity were discussed. Three data collection methods were recommended namely, mail, electronic mail and phone calls

which provided a satisfactory response rate. A random sampling of all the population from the Dun and Bradstreet Business Directory has been performed in order to generate an adequate response to satisfy statistical significance of the population of interest as well as develop a representative sample of the study for the business population of interest. Out of 1200 participants who the surveys sent to, 346 of them participated in the research. There were many rejection letters that are sent back to the researcher. The reasons were generally they did not allowed provide disclose information, they were busy, they did not have time and as a company policy they do not participate in research. At the end of the period, 346 surveys were received (a 28 percent response rate). However, 33 surveys were incomplete which were excluded from the study, leaving 313 useable responses. Furthermore, in order to obtain valid responses as a controlling procedure was applied to clarify the key informants eligible to participate in the study and 13 surveys were excluded from the study. Thus, 300 surveys were remained for the analysis. Finally, several controlling criteria were applied to eliminate potential bias. This included testing for non-response bias, key informant bias, response bias and sampling bias.

CHAPTER 4

Analysis and Findings

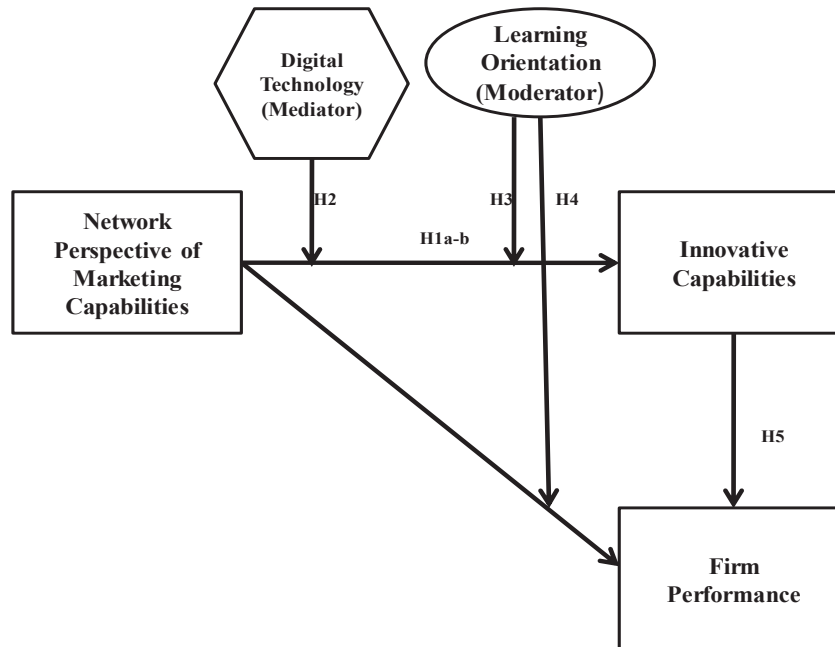
4.1. Introduction

This chapter consists of two main analysis sections; the first section describes the analysis of the research measurement model, while the second part provides validations for further analysis and hypotheses testing. The Chapter begins by presenting the research conceptual model again for convenience and descriptive analysis of respondents. Then it follows a section for assessment of the measurement model which includes measurement of reliability and validity, factor and reliability analysis. Finally, it tests the research hypotheses, mediation and moderation.

4.2. The Research Conceptual Model

The research conceptual model and theoretical framework underpinning the hypothesised relationships were outlined and discussed in Chapter Two. However, the conceptual model is presented again in figure 4.1 for convenience to refer to the analysis and findings presented in this chapter.

Figure 4.1: The Research Conceptual Model



4.3 Descriptive Analysis of Respondents

Following the brief outline of the study sample in the methodology chapter, this section further describes respondents' profiles in detail. Table 4.1 shows the characteristics of 300 respondents who were participated in the study. It provides industry category, company size, percentage of annual net profit reinvested in information in technology or research development, annual sales turnover and data collection mode. The purpose is to track respondents and see the distribution for the data.

The majority of the companies that involved in this research were from information and electronics (24.3 percent), metal and machinery (22.3 percent) and business services (20.3 percent) industries. The other industries were chemicals and plastics (18.0 percent), environmental and natural resource (6.7 percent), food and textile (3.3 percent) and other industries (5 percent).

In terms of company size, small companies employing less than 50 employees represented 39 percent, medium companies with more than 50 employees to 500 employees represented 29.7 percent, and finally large companies employing more than 500 employees represented 31.3 percent of the respondents.

In terms of percentage of annual net profit reinvested in information in technology or research development, companies reinvesting less and equal to 5 percent of their net profit represented 56.3 percent, companies reinvesting more than 5 but less than 10 percent of their net profit represented 10.0 percent, and finally 10 or more than 10 percent represented 33.7 percent of the respondents. Most companies of the sample (42.0 percent) have annual sales turnover of less than 100K. Companies with more than 1M annual sales turnover represented 29 percent. Of the selected 300 sample only 159 (53 percent) of respondents replied the mail survey that was sent to them. 123 (41 percent) respondents preferred to reply the survey by electronic email. And the last 18 (6 percent) surveys were collected by interviews and phone interviews which have been arranged during the data collection process.

Table 4.1: Respondent profile

Profile	Count	Percent
Industry category		
- Metal and Machinery	67	22.3
- Information and Electronics	73	24.3
- Chemicals and Plastics	54	18.0
- Business Services	61	20.3
- Environmental and Natural Resources	20	6.7
- Food and Textile	10	3.3
- Other Industries	15	5.0
TOTAL	300	100.0
Company size		
- Small ≤ 50 employees	118	39.0
- Medium 51 to 500 employees	89	29.7
- Large ≥ 500 employees	93	31.3
TOTAL	300	100.0
Percentage of annual net profit reinvested in information in technology or Research Development		
- ≤5%	169	56.3
- >5% to <10%	30	10.0
- ≥10%	86	33.7
TOTAL	300	100.0
Annual Sales Turnover		
- <100K	126	42.0
- ≥100K to <250K	22	7.3
- ≥250 K to < 350K	11	3.7
- ≥350K to <500K	35	11.7
- ≥500K to <750K	6	2.0
- ≥750K to <1M	13	4.3
- ≥1M	87	29.0
TOTAL	300	100.0
Data Collection Modes		
- Mail	159	53.0
- Electronic mail	123	41.0
- Interviews and Phone	18	6.0
TOTAL	300	100.0

4.4. Assessment of the Measurement Model

In order to evaluate the measurement model and the relationship between the constructs and their indicators or the items used to represent them, it is crucial to determine the validity and the reliability of the measures used to represent the constructs. As it was discussed in Chapter Three, reliability analysis measures the internal consistency of the questionnaire. The item-to-total correlation and Cronbach's Alpha were used to evaluate reliability. On the other hand, discriminant validity can be assessed by using exploratory factor analysis. In this regard, the validity and reliability of the measurement model were established before examining the hypothesised relationships between constructs. As it mentioned before in Chapter Three, this research used mostly existing validated scales adapted from prior research with modifications based on the pilot study as indicated in Chapter Three. Also a new scale for digital technology was developed and it has been tested in terms of reliability and validity after the pilot test.

In order to develop and purify the measures to be used in hypotheses testing, several analyses were undertaken. First, reliability analysis, and exploratory analysis were undertaken using SPSS. This section provides all the analyses and tables in detail as a prerequisite to performing hypothesis testing.

4.4.1 Measure Reliability and Validity

Reliability and validity are very crucial to be addressed in assessing construct measurement in terms of identifying accuracy, data bias and distortion. The reliability and validity of the measures in this research were established according to standard procedures recommended by Gerbing and Anderson (1987). The following section briefly describes the two concepts, their significance and how they measured.

Reliability

Reliability refers to the extent which the data collection techniques or analysis procedures will yield consistent findings (Saunders et al. 2007). It is particularly an issue in connection with quantitative research (Bryman et al. 2003). Reliability is usually estimated by internal consistency which estimates reliability by grouping questions in a questionnaire that measure the same concept based on correlations between different items of the same construct. More specifically, it measures whether several items that propose to measure the same general construct produce similar scores.

The most common internal consistency measure used in research is Cronbach's Alpha, which is usually interpreted as the mean of the all possible split-half coefficients (Nunnally 1978). Cronbach's Alpha generally increases as the inter-correlations among test items increase. This is because intercorrelations among items

are maximized when all items measure the same construct. Cronbach's Alpha is widely believed to indirectly indicate the degree to which a set of items measures a single unidimensional latent construct. Internal consistency ranges from zero to one. A commonly accepted rule is that Cronbach's Alpha of 0.7 indicated acceptable reliability, and 0.8 or higher indicates good reliability (DeVellis 1991; Nunnally 1978).

Validity

“Validity is the extent to which the research findings accurately represent what is really happening in the situation” (Collis and Hussey 2003, p: 53). Research errors, such as faulty research procedures, poor samples and inaccurate or misleading measurements can reduce validity.

Constructs validity which is defined broadly as the extent to which an operationalization measures the concept it is supposed to measure (e.g, Cook and Campbell 1979) has been singled-out as a central issue in organizational research (e.g, Webb and Weick 1979; Schwab 1980; Mitchell 1985). Construct validity was assessed with the guidelines outlined by Churchill (1979) and Gerbing and Anderson (1987). Since most of the measurement scales have been modified from prior studies, the factor structure (through principal components) was examined for each scale.

In this research, reliability was estimated via internal consistency and Cronbach's Alpha and validity was estimated with the factor analysis and

intercorrelations between constructs. Principal components analysis with Varimax rotation and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser 1970) and Bartlett's test of sphericity were deemed appropriate. Factors were retained only if they possessed an Eigenvalue greater than one, accounted for over fifty percent of variance and if they were conceptually clear and interpretable (Churchill 1991). The KMO can be calculated "for individual and multiple variables and represents the ratio of the squared correlation between variables to the squared partial correlation between variables" (Field 2009, p: 647). The KMO statistic varies between 0 and 1. A value close to 1 indicates that patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors. Kaiser (1974) recommends "a value greater than .5 as barely acceptable (values below this leads either to collect more data or rethink which variables to include). Values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, and values between 0.8 and 0.9 are great and above 0.9 are superb "(Hutcheson and Sofroniou 1999 cited in Field 2009, p: 647). Further analysis for reliability and validity was assessed with confirmatory factor analysis.

4.4.2 Factor and Reliability Analysis:

This section presents constructs used in this research and the all items used to measure each construct. It provides a summary of the results of factor and reliability analysis performed in SPSS for each construct and items. Table 4.2 represents the KMO and Bartlett's test and reliability analysis for each construct. Reliability for

seven construct yielded a good Cronbach Alpha of over 0.80. KMO and Bartlett's test measure verified the sampling adequacy and sphericity for the analysis, ranging from 0.620 for marketing capabilities (mediocre according to Kaiser 1974); 0.907 (superb according to Kaiser, 1974) for innovative capability; 0.899 for performance; 0.809 for digital technology and 0.817 for learning orientation (great according to Kaiser 1974) and 0.728 for market dynamism and 0.753 for environmental uncertainty (good according to Kaiser, 1974).

Table 4.2: KMO and Bartlett's Test and Reliability Analysis

Constructs	Number of Items	KMO and Bartlett's Test	Cronbach's Alpha	
			CA	Based on standardised items
1. Marketing Capability	38	.620	.992	.992
2. Innovative Capability	6	.907	.987	.988
3 Performance	15	.899	.984	.984
4. Digital Technology	15	.809	.953	.955
5. Learning Orientation	20	.817	.969	.970
6. Market Dynamism	5	.728	.850	.837
7. Environmental Uncertainty	9	.753	.901	.899

The following sections discuss in detail of the measurement analysis of the research constructs.

Measures of the Independent Variables

Marketing Capabilities: The independent variables of marketing capabilities were derived from Vorhies and Morgan's (2005) and Eng and Spickett-Jones (2009)

studies regarding the contribution of marketing capabilities to business performance. The eight marketing capabilities are pricing, product development, channel management, marketing communication, selling, marketing information management, marketing planning and market implementation. It is measured by a seven-point running scale of ‘1= strongly agree’ to ‘7 =strongly disagree’.

Reliability analysis yielded a good Cronbach’s Alpha for eight marketing capabilities as shown below Table 4.3. An initial analysis was run to obtain Eigenvalues for each component in the data. Three components had Eigenvalues over Kaiser’s criterion of 1 and on combination 86.55 percent of the variance (Please see Appendix Two for scatter plots charts).

Table 4.3: Reliability Analysis for Marketing Capabilities

Constructs	Scale Items retained	Mean	SD	Cronbach’s alpha	
				CA	CA based on Standardized Items
1. Pricing capabilities	Pcg1	3.05	1.580	.932	.934
	Pcg2	3.00	1.631		
	Pcg3	2.90	1.443		
	Pcg4	3.19	1.692		
2. Product development capabilities	Pd1	3.14	1.709	.965	.966
	Pd2	3.13	1.884		
	Pd3	3.51	1.938		
	Pd4	3.24	1.609		
	Pd5	2.78	1.751		
3. Channel management capabilities	Cmg1	2.71	1.608	.980	.980
	Cmg2	3.20	1.837		
	Cmg3	3.08	1.755		
	Cmg4	3.18	1.853		
	Cmg5	3.35	1.718		
	Cmg6	3.03	1.825		

Constructs	Scale Items retained	Mean	SD	Cronbach's alpha	
4. Marketing communication capabilities	Mcom1	3.11	1.417	.940	.940
	Mcom2	2.91	1.483		
	Mcom3	2.97	1.299		
	Mcom4	2.65	1.438		
	Mcom5	2.43	1.361		
5. Market information management capabilities	Mkinfo1	2.87	1.424	.926	.927
	Mkinfo2	3.05	1.535		
	Mkinfo3	2.54	1.489		
	Mkinfo4	3.02	1.591		
6. Selling capabilities	Sellg1	2.75	1.380	.939	.944
	Sellg2	3.18	1.569		
	Sellg3	3.13	1.747		
	Sellg4	3.17	1.928		
7. Market planning capabilities	Mplg1	3.25	1.960	.972	.973
	Mplg2	3.00	1.799		
	Mplg3	3.11	1.667		
	Mplg4	2.91	1.715		
	Mplg5	3.10	1.829		
8. Marketing Implementation Capabilities	Mimpl1	3.31	1.646	.972	.972
	Mimpl2	3.21	1.720		
	Mimpl3	3.06	1.675		
	Mimpl4	3.23	1.778		
	Mimpl5	3.32	1.763		

Digital Technology

Independent variable of this research used as a mediator. In this research, digital technology was measured from organisational level, network level, marketing level and operational level. It was measured by a seven-point running scale of '1= strongly agree' to '7 =strongly disagree'.

Reliability analysis yielded a good Cronbach's Alpha for digital technology as shown below Table 4.4. An initial analysis was run to obtain Eigenvalues for each component in the data. Two components had Eigenvalues over Kaiser's criterion of 1 and on combination 73.53 percent of the variance.

Table 4.4: Reliability Analysis for Digital Technology

Constructs	Scale Items retained	Mean	SD	Cronbach's alpha	
				CA	CA based on Standardized Items
Digital technology	DtOg1	3.1867	1.54914	.827	.838
	DtOg2	3.5200	1.94135		
	DtOg3	2.3567	.90490		
	DtN1	4.0333	1.99470	.883	.875
	DtN2	4.1800	2.15478		
	DtN3	4.0967	2.06110		
	DtN4	2.1867	.81693		
	DtMkg1	3.5967	1.76001	.858	.858
	DtMkg2	3.3500	1.84359		
	DtMkg3	3.7500	1.94080		
	DtMkg4	2.2033	.70021		
	DtOp1	4.1100	1.84642	.787	.790
	DtOp2	4.2400	1.97198		
	DtOp3	3.6000	1.85782		
	DtOp4	4.5000	1.92241		

Measures of the Dependent Variables

Innovative Capability

The dependent variable of the research, innovative capability, were derived from Tushman and Anderson (1986) and Henderson and Clark (1990) studies regarding the contribution of innovative capability to business performance. The innovative capability examined in two which are *incremental innovative capability* and *radical innovative capability*. It is measured by using a seven-point running scale of ‘1= very stronger than competition’ to ‘7=very weaker than competition’.

Reliability analysis yielded a good Cronbach’s Alpha for innovative capability as shown below Table 4.5. An initial analysis was run to obtain Eigenvalues for each component in the data. One component had Eigenvalues over Kaiser’s criterion of 1 and on combination 94.26 percent of the variance.

Table 4.5: Reliability Analysis for Innovative Capability

Constructs	Scale Items	Mean	SD	Cronbach’s alpha	
				CA	CA based on Standardized Items
Innovative Capability	IncIncap1	3.79	1.760	.977	.979
	IncIncap2	3.79	1.775		
	IncIncap3	3.94	1.979		
	RinnCap1	4.10	1.923	.987	.987
	RinnCap2	4.05	2.023		
	RinnCap3	4.15	1.976		

Firm Performance

The dependent variable of the research, firm performance, was derived from Jaworski and Kohli (1993) and Baker and Sinkula (1999). It is measured by seven point Likert-type scale.

Reliability analysis yielded a good Cronbach's Alpha for performance as shown below Table 4.6. An initial analysis was run to obtain Eigenvalues for each component in the data. Two components had Eigenvalues over Kaiser's criterion of 1 and on combination 90.12 percent of the variance.

Table 4.6: Reliability Analysis for Performance

Constructs	Scale Items retained	Mean	SD	Cronbach's alpha	
				CA	CA based on Standardized Items
Firm performance	OP1	3.02	1.687	.980	.981
	OP2	3.21	1.742		
	OP3	3.21	1.642		
	NPS1	3.73	1.917	.987	.987
	NPS2	3.70	1.841		
	NPS3	3.80	1.937		
	NPS4	4.00	1.886		
	NPS5	3.94	1.940		
	FP1	3.75	1.695	.921	.921
	FP2	3.38	1.491		
FP3	3.56	1.571			

Control Variables

This research controls for various factors that are suggested in the literature.

Market Dynamism

The measurement scale of market dynamism was derived from the study of Jaworski and Kohli (1993). It is measured by a seven-point running scale of '1= strongly agree' to '7 =strongly disagree'.

Reliability analysis yielded a good Cronbach's Alpha for market dynamism as shown below Table 4.7. An initial analysis was run to obtain Eigenvalues for each component in the data. Two components had Eigenvalues over Kaiser's criterion of 1 and on combination 86.39 percent of the variance.

Environmental Uncertainty

Technological uncertainty and competitive intensity were measured by a seven-point running scale of '1= strongly agree' to '7 =strongly disagree.

Reliability analysis yielded a good Cronbach's Alpha for environmental uncertainty as shown below Table 4.7. An initial analysis was run to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1 and on combination 93.33 percent of the variance.

Table 4.7: Reliability Analysis for Control Variables

Constructs	Scale Items	Mean	SD	Cronbach's alpha	
				CA	CA based on Standardized Items
Market Dynamism	MkDyn1	2.87	1.501	.850	.837
	MkDyn2	3.43	1.577		
	MkDyn3	3.19	1.608		
	MkDyn4	4.80	1.798		
	MkDyn5	2.77	1.075		
Environmental Uncertainty	Tu1	3.57	1.926	.971	.973
	Tu2	2.99	1.525		
	Tu3	3.48	1.722		
	Tu4	3.73	1.982		
	ComI1	2.55	1.376	.863	.861
	ComI2	2.57	1.292		
	CompI3	2.57	1.303		
	CompI4	2.99	1.292		
	CompI5	3.11	1.238		

Moderator:

Learning Orientation: Learning orientation has four dimensions; commitment to learning, shared vision, open-mindedness and intra-organizational knowledge sharing (Day 1991, 1994; Sinkula et al. 1997). The scale for the measurement of learning orientation was derived from Calantone et al.' (2002) and Sinkula et al.'s (1997) studies. It is measured by a seven-point running scale of '1= strongly agree' to '7 =strongly disagree'.

Reliability analysis yielded a good Cronbach's Alpha for learning orientation as shown below Table 4.8. An initial analysis was run to obtain Eigenvalues for each

component in the data. Four components had Eigenvalues over Kaiser's criterion of 1 and on combination 85.99 percent of the variance.

Table 4.8: Reliability Analysis for Learning Orientation

Constructs	Scale Items	Mean	SD	Cronbach's alpha	
				CA	CA based on Standardized Items
Learning Orientation	Comlearn1	2.97	1.485	.903	.902
	Comlearn2	2.45	1.202		
	Comlearn3	2.94	1.837		
	Comlearn4	3.04	1.749		
	Comlearn5	2.85	1.846		
	Comlearn6	3.12	1.775		
	Svis1	2.92	1.628	.932	.935
	Svis2	3.33	1.789		
	Svis3	3.17	1.615		
	Svis4	3.06	1.700		
	Svis5	3.03	1.782		
	OpM1	3.62	1.871	.917	.921
	OpM2	3.25	1.960		
	OpM3	3.58	1.757		
	OpM4	3.49	2.314		
	OpM5	3.03	1.796		
	IntraOg1	3.27	1.691	.928	.930
	IntraOg2	3.58	1.745		
	IntraOg3	3.61	1.744		
	IntraOg4	3.60	1.856		
IntraOg5	3.65	1.888			

Table 4.9: Statistical Description of Scales

Constructs	Mean	Standard Deviation
1. Marketing Capability	3.05	1.467
2. Innovative Capability	3.97	1.851
3 Performance	3.57	1.628
4. Digital Technology	3.53	1.357
5. Learning Orientation	3.23	1.413
6. Market Dynamism	2.92	1.052
7. Environmental Uncertainty	3.06	1.152

Constructs	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
1. Marketing Capability	.566	.141	-.974	.281
2. Innovative Capability	.074	.141	-1.171	.281
3 Performance	.323	.141	-1.265	.281
4. Digital Technology	-.452	.141	-1.303	.281
5. Learning Orientation	.253	.141	-1.287	.281
6. Market Dynamism	.455	.141	.548	.281
7. Environmental Uncertainty	.571	.141	-.385	.281

In addition to normality, Variance Inflation Factor (VIF) test was used to assess multicollinearity. When VIF is 5 or large than multicollinearity is a problem (Pallant 2005; Hair et al. 2006). All VIF values which are calculated by the formula $1/1-R^2$ where R^2 is the coefficient of determinanation , were less than 10 indicating the non existence of the multicollinearity, see table 4.10 (Hartline and Ferrell 1996).

Table 4.10: Multicollinearity Test

Model	R ²	1-R ²	VIF (1/1-R ²)
1. Marketing Capability	0.54	0.46	2.17
2. Innovative Capability	0.51	0.49	2.04
3 Performance	0.67	0.33	3.03
4. Digital Technology	0.61	0.39	2.56
5. Learning Orientation	0.50	0.50	2.00
6. Market Dynamism	0.25	0.75	1.33
7. Environmental Uncertainty	0.25	0.75	1.33

As a result of reliability and validity analysis, a further analysis was undertaken to further purify the scale if needed and to provide more insights about the reliability and validity of the measurement model. Composite reliability (CR) and average variance extracted (AVE) for each construct are computed. A composite reliability of values greater than 0.6 are desirable as it indicates that the items as a total provides reliable measurement of the construct (Bagozzi and Yi 1990). AVE shows directly the amount of variance captured by the construct in relation to the amount of variance due to measurement error and a value greater than 0.50 is considered acceptable (Fornell and Larker 1981).

Table 4.11 provides information about constructs' mean, standard deviation, Cronbach's alpha, scale composite reliability and average variance extracted by the construct.

Table 4.11: Summary of the Constructs Reliability Analysis

Constructs	Scale Items	Mean	SD	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
1. Pricing capabilities	Pcg1	3.05	1.580	.934	.92	.85
	Pcg2	3.00	1.631			
	Pcg3	2.90	1.443			
	Pcg4	3.19	1.692			
2. Product development capabilities	Pd1	3.14	1.709	.966	.96	.68
	Pd2	3.13	1.884			
	Pd3	3.51	1.938			
	Pd4	3.24	1.609			
	Pd5	2.78	1.751			
3. Channel management capabilities	Cmg1	2.71	1.608	.980	.96	.79
	Cmg2	3.20	1.837			
	Cmg3	3.08	1.755			
	Cmg4	3.18	1.853			
	Cmg5	3.35	1.718			
	Cmg6	3.03	1.825			
4. Marketing communication capabilities	Mcom1	3.11	1.417	.940	.94	.66
	Mcom2	2.91	1.483			
	Mcom3	2.97	1.299			
	Mcom4	2.65	1.438			
	Mcom5	2.43	1.361			
5. Market information management capabilities	Mkinfo1	2.87	1.424	.927	.92	.55
	Mkinfo2	3.05	1.535			
	Mkinfo3	2.54	1.489			
	Mkinfo4	3.02	1.591			
6. Selling capabilities	Sellg1	2.75	1.380	.944	.94	.56
	Sellg2	3.18	1.569			
	Sellg3	3.13	1.747			
	Sellg4	3.17	1.928			
7. Market planning capabilities	Mplg1	3.25	1.960	.973	.96	.75
	Mplg2	3.00	1.799			
	Mplg3	3.11	1.667			
	Mplg4	2.91	1.715			
	Mplg5	3.10	1.829			
8. Marketing Implementation Capabilities	Mimpl1	3.31	1.646	.972	.96	.79
	Mimpl2	3.21	1.720			
	Mimpl3	3.06	1.675			
	Mimpl4	3.23	1.778			
	Mimpl5	3.32	1.763			

Constructs	Scale Items	Mean	SD	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
9. Innovative Capability	IncIncap1	3.79	1.760	.979	.96	.64
	Inclncap2	3.79	1.775			
	Inclncap3	3.94	1.979			
	Rinncap1	4.10	1.923	.987		
	Rinncap2	4.05	2.023			
	Rinncap3	4.15	1.976			
10. Learning Orientation	Comlear1	2.97	1.485	.902	.89	.55
	Comlear2	2.45	1.202			
	Comlear3	2.94	1.837			
	Comlear4	3.04	1.749			
	Comlear5	2.85	1.846			
	Comlear6	3.12	1.775			
	Svis1	2.92	1.628	.935		
	Svis2	3.33	1.789			
	Svis3	3.17	1.615			
	Svis4	3.06	1.700			
	Svis5	3.03	1.782			
	OpM1	3.62	1.871	.921		
	OpM2	3.25	1.960			
	OpM3	3.58	1.757			
	OpM4	3.49	2.314			
	OpM5	3.03	1.796			
	IntraOg1	3.27	1.691	.930		
	IntraOg2	3.58	1.745			
	IntraOg3	3.61	1.744			
	IntraOg4	3.60	1.856			
IntraOg5	3.65	1.888				
11. Digital technology	DtOg1	3.18	1.549	.838	.82	.75
	DtOg2	3.52	1.941			
	DtOg3	2.35	.9049			
	DtN1	4.03	1.994	.875		
	DtN2	4.18	2.154			
	DtN3	4.09	2.061			
	DtN4	2.18	.8169			
	DtMkg1	3.59	1.760	.858		
	DtMkg2	3.35	1.843			
	DtMkg3	3.75	1.940			
	DtMkg4	2.20	.7002			
	DtOp1	4.11	1.846	.790		
	DtOp2	4.24	1.977			
	DtOp3	3.60	1.857			
DtOp4	4.50	1.922				

Constructs	Scale Items	Mean	SD	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
12.Firm performance	OP1	3.02	1.687	.981	.97	.85
	OP2	3.21	1.742			
	OP3	3.21	1.642			
	NPS1	3.73	1.917	.987		
	NPS2	3.70	1.841			
	NPS3	3.80	1.937			
	NPS4	4.00	1.886			
	NPS5	3.94	1.940			
	FP1	3.75	1.695	.921		
	FP2	3.38	1.491			
FP3	3.56	1.571				
14.Market Dynamism	MkDyn1	2.87	1.501	.837	.82	.55
	MkDyn2	3.43	1.577			
	MkDyn3	3.19	1.608			
	MkDyn4	4.80	1.798			
	MkDyn5	2.77	1.075			
15. Environmental Uncertainty	Tu1	3.57	1.926	.973	.96	.79
	Tu2	2.99	1.525			
	Tu3	3.48	1.722			
	Tu4	3.73	1.982			
	Com1	2.55	1.376	.861		
	Com12	2.57	1.292			
	Comp13	2.57	1.303			
	Comp14	2.99	1.292			
	Comp15	3.11	1.238			

Finally, Table 4.12 shows the correlation matrix between constructs as a measure of construct validity. Table 4.13 provides the correlation matrix between constructs including individual marketing capabilities. The correlation results show encouraging signs for further investigation. There is a significant correlation between dependent variable and all the dependent variables as well as mediator and moderator. Correlation matrices determine the strength and direction of a relationship between variables. As it can be seen, there are strong correlations such as between constructs. As the value of one variable increases then the value of the other variable also increases.

Table 4.12: Correlation Matrix of Main Constructs

	Mean	S.D.	1	2	3	4	5	6	7
1.Marketing Capability	3.05	1.467	1						
2.Digital Technology	3.53	1.357	.797**	1					
3.Innovative Capability	3.97	1.851	.892**	.862**	1				
4.Performance	3.57	1.628	.912**	.832**	.950**	1			
5.Learning Orientation	3.23	1.413	.862**	.789**	.836**	.844**	1		
6.Market Dynamism	2.92	1.052	0.096	.208**	0.06	0.021	-.202**	1	
7.Environmental Uncertainty	3.06	1.152	.338**	.424**	.299**	.289**	0.084	.791**	1

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

a. Listwise N=300

p<.10 0.095

p<.05 0.113

p<.01 0.148

p<.001 0.189

Table 4.13: Correlation Matrix including Individual Marketing Capabilities

	Mean	S.D.	1	2	3	4	5	6	7
1.Marketing Capability	3.05	1.467	1						
2.Digital Technology	3.53	1.357	.797**	1					
3.Innovative Capability	3.97	1.851	.892**	.862**	1				
4.Performance	3.57	1.628	.912**	.832**	.950**	1			
5.Learning Orientation	3.23	1.413	.862**	.789**	.836**	.844**	1		
6.Market Dynamism	2.92	1.052	0.096	.208**	0.06	0.021	-.202**	1	
7.Environmental Uncertainty	3.06	1.152	.338**	.424**	.299**	.289**	0.084	.791**	1

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

a. Listwise N=300

p<.10 0.095

p<.05 0.113

p<.01 0.148

p<.001 0.189

4.5 Hypotheses Testing

The first hypothesis proposed in the structural model (see table 4.15 and Figure 4.1) show the impact of firm's network perspective of its marketing capabilities impact on its innovative capability. The results indicate a positive and significant results on its impact on innovative capability ($\beta=0.892$, $p<0.01$). Therefore it can be concluded that a firm's network perspective of its marketing capabilities has a positive impact on its innovative capability.

As there are no empirical studies that have identified specific marketing capabilities for enhancing firm innovative capability and the extent to which marketing capability impacts on innovative capability, the results (H1b) show the types of a firm's network perspective of marketing capabilities individually have positive impacts on innovative capabilities. This hypothesis was not supported for all eight marketing capabilities (See Table 4.15).

When marketing capabilities were analysed individually, the results of the findings support that specific marketing capabilities have different impacts on innovative capability. The findings show strong support for product development capability ($\beta=0.596$, $p<0.01$); marketing implementation capability ($\beta=0.503$, $p<0.01$); pricing capability ($\beta=0.431$, $p<0.01$). Surprisingly, even though marketing capabilities have a positive impact on innovative capability (H1a); selling capability ($\beta= - 0.465$, $p<0.01$) and channel management capability ($\beta=-0.303$, $p<0.01$) have a

negative effect on MC when examined individually with other marketing capabilities. This suggests selling capability and channel management capability may not impact significantly on innovative capability.

Marketing communications capability ($\beta=0.018$, $p=0.752$); market information management capability ($\beta=-0.035$, $p=0.652$) and marketing planning capability ($\beta=0.187$, $p=0.19$) did not show a significant and positive impact on innovative capability.

The results of the analysis strongly supported the positive impact of innovative capability on firm performance and support the previous research. The hypothesis five was found to be significant ($\beta=0.950$, $p<0.01$).

Table 4.14: Hypotheses Testing

Hypothesis	Hypothesized Association	Expected Sign	Standardized Coefficient	t-value	p-value	Hypothesized test
H1a	MC → IC	+	.892	4.768	0.00	Supported
H1b	P → IC	+	0.431	8.065	0.00	Supported
	PD → IC	+	0.596	9.984	0.00	Supported
	CM → IC	+	-0.303	-4.699	0.00	Not Supported
	MCom → IC	+	0.018	0.350	0.752	Not Supported
	MIM → IC	+	-0.035	-0.451	0.652	Not Supported
	S → IC	+	-0.465	-9.179	0.00	Not Supported
	MP → IC	+	0.187	2.351	0.19	Not Supported
	MI → IC	+	0.503	6.370	0.00	Supported
H5	IC → FP		0.950	3.671	0.00	Supported

4.6 Testing for Mediation

As mentioned before, one of the objectives of this study is to understand how digital technology serves as an enabler between marketing and innovative capabilities. The importance of using productively and efficiently digital technologies on various processes within a firm results in the effective overall performance. Digital technologies affect positively, if used correctly, from several functions in a business. For example, digital technology contributes to faster production and distribution within the internal environment of an organisation. It also provides the benefit of fast information to and from its customers, and other business associates. Faster information gathering increases the market knowledge, and therefore it enables the firm to respond quicker and more efficiently to the market's requirements (Jaworski and Kohli 1993). Also a continuous approach to enhancing the technological knowledge can increase the opportunity to firms to innovate and help develop sustainable competitive advantage (Marsh and Stock, 2003).

Thus, digital technology has been conceptualised as a mediator for the relationship between marketing capability and innovative capability. This section provides an overview of the mediation concept and the analysis, and the results of the mediation model. The mediation effect was tested by using criteria recommended by Baron and Kenny (1986), using Sobel Test (Preacher and Hayes 2004).

Mediation is present when the influence of an input variable is transmitted to an output variable through a mediator. According to Baron and Kenny (1986) a variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator, (b) variations in the mediator significantly account for variations in the dependent variable, and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path c is zero.

In order to establish mediation in this research, the following conditions must be met (Baron and Kenny 1986). The independent variable (marketing capability) must significantly affect both the mediator (digital technology) and the dependent variable (innovative capability) in the first and second regression. In the third regression analysis, the mediator (digital technology) must affect the dependent variable (innovative capability), and the regression coefficient associated with the independent variable should either fall in significance (for partial mediation) or to non-significance (for full mediation) with the addition of the mediating variable to the analysis (Baron and Kenny 1986).

Table 4.15: Mediation

Independent Variables	Dependent Variables			
	Innovative Capability	Digital Technology	Innovative Capability	Innovative Capability
Marketing Capability	.552***(10.023)	.753***(17.256)		0.345 (0.36)
Digital Technology			0.724***(15.734)	0.703***(10.085)
R Square	.303	.562	.526	.524
F value	100.352***	297.446***	246.637***	122.924***
Sobel Test				6.578***

Notes: ***p<.001; t values are in parentheses; β values are outside parentheses

Hypothesis	Hypothesized Association	Exp. Sign	Standardized Coefficient	t-value	p-value	Hypothesized test
H2	MC → DT → IC	+	.703	10.085	.000	Supported

Table 4.16 indicates a full mediation was found on digital technology role on the relationship of marketing capabilities and innovative capability. These results support H2 ($\beta=0.703$, $p<0.01$).

4.7 Testing for Moderation

A moderator affects the relation between an independent and dependent variable. In order to test the moderating effects of learning orientation, this study followed the Baron and Kenny (1986) guidelines. Moderation implies the causal relationship between two variables changes as a function of the moderator variable. Hypothesized moderator is supported between the independent variable and the moderator is significant (Baron and Kenny 1986). The regression model was assessed including the independent variable, assumed moderator and the interaction for the independent and moderator. Table 4.17 shows the interactions of learning orientation and a firm's network perspective of its marketing capabilities are positive, which indicate that learning orientation positively moderates the relationship between a firm's network perspective of its marketing capabilities and its innovative capability and company performance. These results support H3 ($\beta=0.572$, $p<0.05$) and H4 ($\beta=0.503$, $p<0.01$).

Table 4.16: Moderation Testing

Hypothesis	Hypothesized Association	Exp. Sign	Standardized Coefficient	t-value	p-value	Hypothesized test
H3	LO X MC → IC	+	.572	2.536	.003	Supported
H4	LO X MC → FP	+	.503	3.515	.000	Supported

***p<.001; **p<.01; *p<.05; ns=not significant

Figure 4.2: Conceptual Framework with Coefficient Values

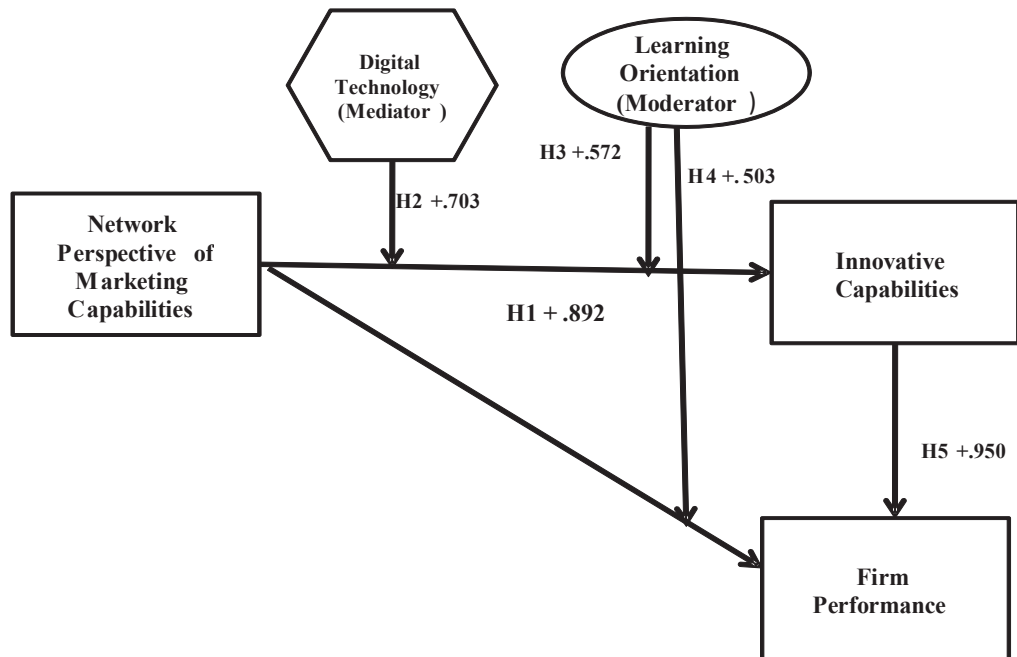


Table 4.17: Hypotheses testing findings summary

No	Hypothesis	Result
H1a	A firm's network perspective of its marketing capabilities has a positive impact on its innovative capability.	Supported
H1b	The types of a firm's network perspective of marketing capabilities individually have positive impacts on innovative capabilities	Not Supported
H2	The relationship between a firm's network perspective of its marketing capabilities and innovative capability is positively mediated by digital technology.	Supported
H3	The relationship of a firm's network perspective of marketing capabilities and innovative capability is positively moderated by learning orientation.	Supported
H4	The relationship of a firm's network perspective of marketing capabilities and firm performance is positively moderated by learning orientation.	Supported
H5	Innovative capability is positively associated with firm performance.	Supported

4.8 Summary

To conclude, this chapter draw on the research conceptual model to analyse the data to examine the research hypotheses. Several complementary techniques were undertaken to ensure a reasonable reliability and validity of the measurement model.

Items and some of the constructs were removed to eliminate error bias in hypotheses testing. Most of the final scales used in hypothesis testing had coefficient alphas exceed the 0.70 level of acceptability suggested by DeVellis (1991) and Nunnally (1978).

Using regression modelling with SPSS, the findings supported all the hypothesized relationships. Nevertheless, there were some unexpected results regarding to the impact of individual marketing capabilities on innovative capability. Findings of the analysis show strong support for product development capability; marketing implementation capability; pricing capability. Surprisingly, even though marketing capabilities have a positive impact on innovative capability (H1a); selling capability, channel management capability have a negative effect on marketing capability when examined individually with other marketing capabilities. Marketing communications capability; market information management capability and marketing planning capability did not show a significant and positive impact on innovative capability. After the mediation analysis, it was proven that the relationship of a firm's network perspective of its marketing capabilities and innovative capability is positively mediated by digital technology. The moderation analysis was undertaken using Baron and Kenny (1986) guidelines. The results of these analyses support the positive moderation effect of learning orientation on innovative capability and firm performance.

Having presented the results about the research measurement and structural model in this chapter, the next chapter provides further discussion about these findings and their implications.

CHAPTER 5

Discussion

5.1 Introduction

The hypotheses of this study were tested in the previous chapter. The underpinning theories reviewed in Chapter Two: market orientation, resource-based view and learning orientation will be discussed. Both innovative capabilities and firm performance have been conceptualised as a consequence of the effect of marketing capabilities and interactions of digital technology and learning orientation. It is through a firm's network perspective of marketing capabilities that innovative capabilities and firm performance would be enhanced. The overall results support the hypothesized relationships and model (Figure 4.1 and 4.2) of this study. This chapter discusses the main findings, and the implications for theory and practice.

5.2 Main Findings

Prior research on marketing capabilities has generally focused more on validating the relative impact of marketing capabilities, either on firm performance or innovation, than the potential mediating and moderating relationship of digital technology and learning orientation respectively on innovative capabilities. This study provides new insight into the significance of digital technology and learning orientation for the

relationship between marketing capabilities and innovative capabilities. Firstly, this study adds to the small number of empirical studies that show the relative impact of marketing capabilities on firm performance by identifying the significance of individual marketing capabilities for innovation. In particular, the findings of this study show product development capability; marketing implementation capability; pricing capability have a strong influence on innovative capabilities. While prior research suggests the interdependence of individual marketing capabilities, this study reveals that certain marketing capabilities (selling capability and channel management capability) deployed individually could have a negative influence on innovative capabilities. Moreover, the present study recognises that a firm's marketing capabilities may reside and/or extend beyond internal resources of the firm to include the firm's network relationships. This network perspective provides a more complete picture the way firms access, develop and deploy capabilities in the business environment.

Secondly, despite numerous empirical studies purported the significance and relevance of learning for enhancing market orientation and innovation, the role of learning orientation in the relationship between marketing capabilities and innovative capabilities remains under explored. This study adds the extant empirical studies that have noted the importance of learning for developing dynamic capabilities and for achieving continuous innovation. As indicated in the results, learning orientation has a positive moderating effect on the relationship between marketing capabilities and innovative capabilities. The extent of the presence of learning orientation in a firm influences the application of marketing capabilities that

strengthens innovative capabilities. The consideration of learning orientation in the marketing capabilities development addresses an existing deficiency in the literature by integrating organisational learning values to acquisition of market knowledge particularly learning from an inter-firm perspective of market orientation.

Thirdly, this study makes a fresh attempt of conceptualising digital technology as a mediator for the relationship between marketing capabilities and innovative capabilities. The results indicate that innovative capabilities is positively mediated by digital technology. This study shows that while marketing capabilities may independently enhance innovative capabilities, digital technology provides a means that facilitate the application of marketing capabilities to develop exploratory and exploitative innovations. Prior research on information technology capability has shown that technological capability is a strong predictor of a firm's innovation performance. This study extends the majority of empirical studies in the context of information technology and system to the development of marketing capabilities. The use of digital technology also reflects the electronic means of information gathering and dissemination in today's increasing digitized business environments.

Finally, as an integrated model of marketing capabilities development to enhance innovative capabilities and firm performance, this study advances new insight into marketing capabilities as regard the significance of digital technology and learning orientation. The results indicate that marketing capabilities not only have differential strengths but also better leveraged through digital technology. The extant literature on marketing capabilities has omitted learning as a key construct of

enhancing innovative capabilities. The extant literature on conceptualisation of marketing capabilities implicitly requires learning for the development of resources and capabilities. Thus, by empirically examining the moderating and mediating roles of learning orientation and digital technology respectively in the relationship between marketing capabilities and innovative capabilities, this study demonstrates that introducing a network perspective to the analysis of marketing capabilities has promise for enhancing a firm's innovative capabilities and financial performance.

5.3 Implications for theory

Hypothesis 1a states that a firm's network perspective of its marketing capabilities has a positive impact on its innovative capabilities. This is supported. The positive and significant results suggest that marketing capabilities contribute to innovation capability. While prior research has shown that market orientation has a positive effect on innovation (Jaworski and Kohli 1993), this study shows that specific marketing capabilities and network characteristics of a firm's relationships impact on innovative capabilities. A firm's network perspective not only extends the internal and single firm construct of market orientation (Elg, 2007; Ghauri, Tarnovskaya and Elg, 2008) but also provides the link between a firm's market-oriented culture and its capabilities. This addresses some of the criticisms of market orientation and marketing in general in terms of focusing on strategic levers that enable innovation. Although a network perspective might need the analysis of multiple firms, a focal firm's perspective is a valid starting point and consistent with bounded rationale of a firm's knowledge of its network actors (Anderson et al. 1994).

Hypothesis 1b is not supported, as types of a firm's network perspective of marketing capabilities individually have positive and negative impacts on innovative capabilities. Previous empirical research in manufacturing and service contexts (Vorhies et al. 1999; Vorhies and Harker 2000; Eng and Spickett-Jones 2009) provide support for the relative importance of individual marketing capabilities. This study adds to knowledge about specific marketing capabilities namely (product development capability ($\beta=0.596$, $p<0.01$); marketing implementation capability ($\beta=0.503$, $p<0.01$); pricing capability ($\beta=0.431$, $p<0.01$)) for enhancing incremental and radical innovations. Further hypothesis tests of mediating and moderating support of digital technology and learning orientation respectively contribute to an understanding of the interactions for the relationship between innovative capabilities and firm performance. Since this study collected data from various industries, the results suggest product development, marketing implementation and pricing capabilities are especially relevant as firms operate in networks of relationships. While certain marketing capabilities could be more salient for a particular industry, the results indicate the importance (product development capability ($\beta=0.596$, $p<0.01$); marketing implementation capability ($\beta=0.503$, $p<0.01$); pricing capability ($\beta=0.431$, $p<0.01$)) for enhancing innovative capabilities.

The conceptualisation of marketing capabilities focused on markets as means of firms developing market-oriented capabilities that are rare, heterogeneous and difficult-to-imitate (Barney 1991; Hunt and Morgan 1995). An understanding of the relative significance and relevance of individual marketing capabilities extends the

marketing concept in several ways. Firstly, the concept of deploying and matching marketing capabilities with a firm's diverse markets would enhance its effectiveness and efficiency in the process of segmenting, targeting and positioning the firm's product offerings. This not only increases the ability of the firm to satisfy customers from a marketing perspective but also relates the relevant marketing capabilities to resources for the development of competitive advantage. The latter combines the resource-based view with the focus of marketing capabilities on markets. Secondly, an innovative capabilities view for allocation of scarce organisational resources can help firms to account for evolution of resource development and changes in the marketplace. In this sense, as firms shift their strategic targets in business growth and competition, strategic fit and alignment would be enhanced through the knowledge of deploying certain marketing capabilities to enhance firm performance. Thirdly, while the relative strength of marketing capabilities may differ in terms of their impact on firm performance, the evolution of marketing capabilities and their relevance for different target markets almost certainly imply interdependence of marketing capabilities (Vorhies and Morgan 2005). In other words, the emphasis of developing certain marketing capabilities might be different depending on a firm's objectives and target markets but it is through knowledge of their relevance that firms have a better understanding of how different marketing capabilities affect firm performance. As such, this results in a better allocation of resources while extending the marketing concept to enhance customer satisfaction and firm performance.

Hypothesis 2 provides support for the role of digital technology in facilitating the positive relationship between marketing capabilities and innovative capabilities.

The use of digital technology in business is consistent with the network perspective, in that technology enables multiple interactions between firms in a web of relationships. Although prior research has shown that technology enhances firm performance, few studies explicitly examine the mediating effect of digital technology on innovative capabilities. The implications for theory are twofold. First, digital technology is more appropriately conceptualised as an enabler (mediator) of firm performance between marketing and innovative capabilities. In this sense, innovation based on technologies can be better enhanced by the capability to deploy relevant marketing capabilities. Second, digital technology can increase the success rate of innovation with widely documented benefits of improving business efficiency (e.g., lower business costs, fast response, and automated services). Moreover, digital technology is increasingly relevant in analysing innovative capabilities as a firm's activities and relationships are often connected through digital networks.

The network perspective of innovative capabilities is compatible with IT capabilities particularly digital technology and networks. Since networks promote and/or facilitate inter-organisational links, the conceptualisation of digital technology as a mediator between innovative capabilities and innovative capabilities strengthens the influence of networks on innovation. Furthermore, in an empirical study by Goes and Park (1997), a firm's innovative capabilities and the adoption of innovations in the context of hospitals have been shown to be enhanced by the development of inter-organisational links. Such inter-organisational links are consistent with the network perspective of innovative capabilities development. This has implications for the concept of business networks based on a network perspective. Although the

role of business networks in innovation and firm performance has long been recognised, a more realistic and complete conception of organisational networks needs to account for the presence of networks enabled by digital technology. As firms and businesses are increasingly inter-connected in a web of digital technology, the results of this study reveal that a firm's innovative capabilities can be calibrated to improve innovation and firm performance. The mediating effect of marketing capabilities through digital technology has implications for the resource-based view. As the deployment of marketing capabilities is non-IT, digital technology can be regarded as co-specialised complementary resources that facilitate the implementation of marketing capabilities (Mahoney and Pandian 2006). This combination of digital technology of IT resources with non-IT resources (marketing) would amplify the complex arrangement co-specialised complementary resources. This means that the specific leverage of digital technology to enhance innovative capabilities through marketing capabilities is co-specialised. As such, mere imitation and possession of digital technology would not be sufficient to obtain the same complementary resources (e.g., Clemons and Row 1991).

It follows from the potential of co-specialised digital technology and marketing capabilities that firms need to acquire relevant resources to develop the right marketing capabilities for necessary reconfiguration. This creates significant response lag for competitors and increases the complexity of replicating non-IT, in this case marketing capabilities, and digital technology (Siggelkow 2001). Moreover, the mobilisation of co-specialised resources may depend on external relations supported by inter-firm relationships and digital networks. It can be argued that the conceptualisation of digital technology and the findings of this study add to

response-lag drivers – that capable of generating sustainable competitive advantage. As response-lag drivers are subject to organisational learning (Piccoli and Ives 2005; Zhang and Lado 2001), the moderating effect of learning orientation accounts for the process of knowledge accumulation, experimentation and replication of capabilities, and iterative development of competencies from both non-IT resources and IT resources. Thus, the significant and positive results of this study that support the proposed model (see Figure 4.1) provides plausible explanation for its potential to produce competitive advantage.

Hypothesis 3 posits learning orientation as a moderator of the relationship between marketing capabilities and innovative capabilities. As expected a dynamic view of a firm's relationships and capabilities is in line with both market orientation and resource-based view. The latter underscores temporal effects of the development of resources and capabilities over time, which recognises learning from external actors (Hakansson and Snehota 1995). Learning is also a key aspect of market orientation especially through the market orientation practice of gathering, analysing and disseminating information in an organisation. Empirical evidence from the literature indicates learning through mobilisation of capabilities such as marketing capabilities is synonymous of generating new insights to support dynamic capabilities. In the development of market-based capabilities, learning accommodates unpredictable side effects or developments (e.g., digital technology), which are crucial for innovative capabilities and dynamic capability development (Teece et al. 1997). The implication for theory is that innovative capabilities

development can be enhanced by theoretical insights of market orientation, resource-based view and learning orientation.

Similarly, hypothesis 4 is supported, that the relationship between marketing capabilities and firm performance is moderated by learning orientation. This finding indicates the positive effect of learning on firm performance. In particular, learning orientation in a firm increases its potential to enhance as well as to renew marketing capabilities (Nelson and Winter 1982). While this study did not examine the development and renewal of marketing capabilities, resources and capabilities are likely to erode or deteriorate over time. Learning provides the basis for firms to renew their capabilities from the resource-based view of asset stock accumulation. Dierickx and Cool (1989) note that a firm accrues or builds up a resource over time in terms of asset stock accumulation as a result of a consistent pattern of resource flows. Specifically, non-tradable resources (e.g., firm-specific marketing capabilities, specialised customer relationship management information) are supported by learning orientation, in which the firm continually search and improve 'stock' of knowledge requiring refinement over time through consistent 'flow' in terms of commitment and shared vision of the importance of learning. Organisational learning would enhance the innovative capabilities of a firm as a dynamic concept of continuous learning and adjustment that permits ambiguity and complexity. The role of learning orientation in the relationship between marketing capabilities and innovative capabilities reflects learning to cope with unknown future circumstances and search for innovative ideas. Since market orientation and digital technology focus on information processing, the role of learning orientation would provide help

firms to develop adaptive capacity – as the ability to reinvent and deal with tacit knowledge using feedback from the environment (Argyris and Schon 1978; Chakravarthy 1982). Thus, learning can be crucial for market-based capabilities as inevitable changes in the environment necessitate a dynamic perspective of learning orientation.

Theoretically, the positive effects of learning orientation and digital technology on innovative capabilities play a complementary role in strengthening the relationship between marketing capabilities and innovation. Learning orientation includes both learning activities of exploration and exploitation, with the latter focuses on application while exploration emphasizes discovery of new ideas, innovations and routines by breaking down existing structures (Edwards et al. 2005). According to Nooteboom (2000, p. 8) exploitation requires the maintenance of existing identity, knowledge and practices, with a certain amount of control and co-ordination, in a dominant design. Exploration requires their change, with a loosening of control and co-ordination. Exploration inclines to support change while exploitation tends to require stability in organisational learning (Christensen, 1997). It has been widely examined in the dynamic capability literature that organisational inertia and path dependence would prevail in a firm's attempt to break routinisation for innovation (e.g., Eisenhart and Martin 2000; Schreyogg and Kliesch-Eberl 2007). The introduction of digital technology would help to loosen a firm's structural rigidities or at least suppress the dominant design of structures that prevent path-breaking innovations. Furthermore, a network perspective of innovative capabilities development is compatible with network relationships enabled by digital technology.

Such interfirm network relationships complement the opportunity for firms to learn and develop knowledge in the network.

There is positive and significant relationship between innovative capabilities and firm performance (H5). The results support the positive influence of marketing capabilities on innovative capabilities and ultimately, on firm performance. Market orientation has been shown to have a positive impact on innovation (e.g., Han et al., 1998; Eng 2011). Consistent with the market orientation construct, this study also provides support for the moderating role of learning orientation in innovation performance. This study relates market orientation to specific marketing capabilities by testing relevance of individual marketing capabilities. While previous studies have shown the relative importance of marketing capabilities for firm performance (e.g., Vorhies and Morgan 2005; Eng and Spickett-Jones 2009; Morgan, Slotegraff and Vorhies 2009; Morgan, Vorhies and Mason 2009), the interactions of digital technology and learning orientation have not been examined. The implication for theory is that interactions of learning orientation and digital technology add to conceptualisation of the positive impact of marketing capabilities on innovative capabilities and firm performance.

As digital technology comprised physical information technology (IT) resources and competencies in terms of the use of IT in a firm, a learning orientation recognises the integration of IT resources and synergistic effects of innovative capabilities for innovation. It is through of the process of organisational learning that firms acquire IT capabilities such as integrating physical IT networks to take

advantage of digital technology (Keen 1991; Bharadwaj 2000). Learning promotes exploration and exploitation of digital technology to enhance marketing and innovative capabilities. A learning orientation accounts for the dynamic nature of the environment in terms of the time required to respond to changes and integrate complex components of IT and strategic competencies (Ross et al. 1996). For instance, while marketing capabilities would improve targeting relevant customers, learning in the context of mobilising digital technology could further improve the speed of serving the relevant customers. It is possible to draw at least two main implications for marketing and organisational learning. Firstly, due to organisational inertia and response time-lag, the premise of marketing capabilities based on market orientation requires efficient and timely response from the process of gathering, disseminating and responding to changes in the marketplace. The mediating role of digital technology is crucial for reducing response time-lag and time-to-market in innovation. This not only enhances market orientation but also enhances the potential for firms to gain first-mover advantage. Secondly, a learning orientation explicitly addresses the focus of market orientation on developing marketing capabilities. It is also relevant for digital technology, as IT infrastructures and business systems need to be integrated. Learning supports exploration of new digital technologies and exploitation of established IT systems. The ability of firms to innovate can be improved through the integration of digital technology and learning orientation in the positive relationship between marketing capabilities and innovative capabilities.

5.4 Implications for practice

Today's business environment is characterised by interconnectedness of relationships between firms. Apart from an internal consideration of firm marketing resources, firms must adopt a network perspective of its resources and capabilities in relation to external interfirm relationships. This study shows that a network perspective of marketing capabilities is relevant for managers to develop and strengthen innovative capabilities. In a network view, managers' evaluation of marketing capabilities spans organisational boundaries and opens up new opportunities for integrating external capabilities through interfirm collaboration and relationship development. While the present study examined this network perspective from a single firm viewpoint, a firm's network perspective acts as a conduit from the firm to reach-out to external relationships and hence, provides the opportunity to assess capability development. This is somewhat similar to a network organisation (Achrol, 1991), which recognises network characteristics of a firm's relationships and implications for strategy development.

In order to enhance innovative capabilities, firms can nurture and develop specific marketing capabilities (such as: product development capability; marketing implementation capability; pricing capability). While marketing capabilities are interdependent in terms of overall effect and their underpinning of market orientation, managers are more likely to increase innovative capabilities through informed decisions on selecting and mobilising certain marketing capabilities. It is not surprising that prior research on speed to new product development has also

focused on mobilisation of certain organisational structure (e.g., an adhoc team) and specific practices (e.g., open lines of communication). As businesses are increasingly connected as regard interfirm relationships, specific marketing capabilities based on a network perspective are pertinent to managers. Firms are also increasingly connected through the use of digital technology. While managers may not need to be well-versed in technical aspects of digital technology, they must realise digital technology as an enabler for the relationship between marketing capabilities and innovative capabilities. In this instance, managers must explore the opportunity to use digital technology in mobilising marketing capabilities to enhance innovative capabilities. For example, marketing communications can be better enhanced through the use of digital technology based on Internet for live dissemination of information.

The use of digital technology has become a top priority of policy makers and firms in the recent years. This study shows support for the benefit of integrating digital technology and learning orientation in the development of marketing capabilities to enhance innovative capabilities. The implication for managers is to take advantage of digital technology by identifying key marketing capabilities and assessing their combined effect on innovative capabilities. Managers must not only link the use of digital technology to marketing capabilities but they also need to develop firm-specific measures and/or indicators that provide insights into: (a) calibrating key technologies to enhance innovative capabilities performance; (b) eliminating barriers that prevent successful implementation of IT and digital technology; (c) changing existing marketing practice; and (d) developing new

marketing capabilities based on digital technology. Since this study shows the positive effect of digital technology in enhancing the relationship between marketing capabilities and innovative capabilities, managers need to calibrate and measure relevance of key technologies for marketing performance. Managers would provide a continuous assessment of digital technology to develop measures and/or indicators related to their business. For instance, effective digital marketing communications might improve product awareness and customer satisfaction. In addition, managers need to weigh the costs of digital technology, and long-term implications of market-focused based on IT capability. While there are clear benefits of integrating technology in business, the costs of IT investment may be prohibitive for some organisations and/or not suitable for certain marketing activities. Managers also need to consider the potential lock-in effect of digital technology in terms of switching cost and business operations (Amit and Zott 2001). Digital technology would be seen as a complement for improving marketing capabilities and facilitating effective marketing practice rather than technology as an independent and/or straight jacket business solution. At the same time, marketing practice would change to incorporate technological aids for both internal marketing processes and external marketing activities. For example, customer service interface may need to be re-designed to take advantage of efficiencies in the use of technology. In this instance, firms may identify new opportunities and develop new marketing capabilities based on digital technology such as customer relationship management based on cloud computing services.

In an era of rapid communications it is increasingly difficult for managers to identify relevant capabilities and develop competitive advantage. Marketing managers are faced with the accelerating complexity of markets (Day 2011), which demands the ability of firms to learn, adapt and acquire new knowledge. This study provides support for a firm's learning orientation as an organisational behaviour in which the relationship between marketing capabilities and innovative capabilities can be enhanced. Learning orientation recognises the threat of constant environmental changes, complexity of markets and vulnerability of the marketing capabilities gap. Managers committed to learning are not only more prepared in terms of coping with environmental changes but also adept at combining relevant marketing capabilities to match market requirements. A commitment to learning is embedded in a firm's culture of recognising the need to change, and supporting behavioural processes to improve existing knowledge and acquire new knowledge. Further, the increasing demands of changes in customer needs, competitive requirements and information technologies on marketing managers are ongoing and dynamic. This means that managers must be constantly open to learning, changes, and acquisition of new processes and knowledge. As markets become more complex, learning provides a dynamic approach to counter balance risk of uncertainty in complex markets with new knowledge acquired in learning. Learning orientation can be regarded as a way for firms to close the marketing capabilities gap noted by Day (2011). Managers that embrace learning orientation by supporting a shared vision of organisational goals and promotion of learning for continuous improvement will increase organisational innovativeness (Han et al. 1998; Eng 2011).

Apart from the above cultural values of learning orientation, it is possible for managers to use organisational learning mechanisms to promote a learning culture. Several managerial implications for learning orientation can be drawn in the context of enhancing innovative capabilities. Firstly, managers can incentivise employees for generating new ideas such as re-designing workflow in the production to reduce time to market and cut production costs. In this instance, employees' experience and knowledge of production workflow is put to good use based on learning through experience. Secondly, managers can facilitate knowledge dissemination and sharing of knowledge by adapting an organisation's structure to promote open lines of communication and exploit IT communication aids. For example, a firm that adopts a flat organisation structure facilitates communication and exchange of information. The lines of communication in an organisation can be connected electronically through IT to support rapid exchange and dissemination of information. Such flexibility gained from a fluid and dynamic organisation structure with scalable technologies (e.g., digital computing services) promotes both explorative and exploitative learning for developing innovative capabilities, in which the status quo is challenged (Vera and Crossan 2004). Thirdly, following the idea of setting up knowledge bank firms can store or capture knowledge, and learn from experience and mistakes. This idea promotes learning from knowledge exchange and sharing by retaining knowledge and disseminating learning outcomes. For instance, Bain, a consultancy firm encourages its employees to store their learning experience and knowledge in a repository of knowledge bank allowing access for the firm's employees located around the world. Finally, managers can promote learning orientation from the industry best practice and/or from external firm relationships

such as manufacturers and suppliers. These external sources of knowledge and learning opportunities provide the basis for a firm to benchmark its capability and acquire the industry best practice. For example, firms can learn from their market leaders and adopt the industry best solutions such as in the case of Wal-mart's supply chain technologies.

In addition, embracing learning orientation has a positive effect on the firm performance especially relevant in digital technology and network contexts. The simultaneous consideration of both digital technology as mediator and learning orientation as moderator in this study highlights the complex nature of effects from marketing capabilities to innovative capabilities and firm performance. Firms that focus on innovation must consider both learning orientation and the use of digital technology. As marketing capabilities can be enhanced by digital technology in a firm's networks of relationships, learning orientation may complement the need to learn about markets and technologies. Although marketing capabilities have different degrees of relative importance, firms must consider the salient effect on innovative capabilities and firm performance through a dynamic approach of learning orientation. Firms capabilities evolve such as become obsolete and irrelevant in the marketplace and hence, learning plays a key role in mobilisation of selective marketing capabilities in terms of resource renewal and regeneration of new knowledge. In this sense, digital technology acts as enabler of marketing capabilities by facilitating innovation and application of marketing capabilities such as in the case of the reverse auction pricing mechanism used by E-Bay and various business-to-business e-marketplaces (e.g., Eng 2004). Thus, managers are better able to realise

and capitalise on the potential of marketing capabilities through digital technology and learning orientation.

A case in point of digital technology and improved business performance is Wal-Mart's steadfast drive in the use of IT and digital technology for its global retail business. The company is one of the first pioneers in leading mass application of digital technology not only for its internal business operations but also by requiring supply chain partners to use digital technology such as radio-frequency-identification (RFID) for tracking its products. Wal-Mart commands a strong leadership position in the global retail industry through early and committed investment in satellite communication systems and real-time update of sales and inventory information (see e.g., Brown 1999). The company's early investment in IT had led to early mover advantages, which made it difficult for rival firms to imitate and match its capabilities. This demonstrates the importance of exploration and exploitation in the process of organisation learning in acquiring and integrating complex technological systems. Wal-Mart's focus on creating business value and leveraging IT capabilities can be regarded as a direct application of IT to enhance marketing capabilities. The company's innovative capabilities can be attributed to its ability to maintain and improve performance through learning orientation (Nevis et al. 1995; Eisenhardt and Martin 2000). A market-oriented focus on marketing capabilities would facilitate collection, dissemination and information sharing. This can help firms to acquire new knowledge and innovate through the use of IT and mobilisation of marketing capabilities. For example, Wal-Mart's 'cross-docking' innovation relies on IT

capability to enable real-time communication between its in-store point-of-sales systems, its distribution centres, and its suppliers. The implication for managers is that the ability to leverage IT and digital technology is associated with simultaneous presence of learning orientation and digital technology initiatives. McKenney, Copeland and Mason (1995) describe this phenomenon of co-presence between organisational learning and IT strategic initiatives as learning-by-using, which generates competitive advantage through related organisational learning processes in the use of IT. Thus, managers need to take advantage of digital technology to better understand their markets and solve business problems.

CHAPTER 6

Conclusions

6.1 Introduction

This chapter discusses contributions to marketing including theory, practice, methodology and data. Finally, the chapter ends with a discussion of main limitations of the study and future research avenues.

6.2 Main Contributions

This study contributes to the marketing theory on several fronts. First, this study conceptualises that capability development for responding to changes in the environment includes a firm's external resources through connected relationships. By addressing the inherent limitation of resource-based view that focuses mainly on single firms and internal resources respectively, this study meets this challenge and presents a new perspective of the role of marketing capabilities in innovative capabilities particularly in the application of digital technology. Although researchers have theorized about inter-firm market orientation and the network

nature of resources, no empirical research has examined this linkage in mobilisation of marketing capabilities.

Second, the finding of a significant mediating role of digital technology resonates with research that suggests an inter-connected nature of firm relationships, and utilisation of technological capability in communications and flow of information between firms. The ability of digital technology to connect firms electronically, and facilitate real-time exchange market critical information engenders resource and capability exploration beyond the boundary of a firm. Since the use of digital technology increases interconnectedness, firms also increase their opportunity to explore and exploit marketing capabilities to enhance innovation. The significant mediating role of digital technology underscores the wisdom of technology as an enabler of firm performance and suggests a more prominent role in mobilisation of marketing capabilities than has previously been noted in the extant literature.

Third, this study contributes to knowledge of marketing capabilities development. In finding a significant moderating impact of learning orientation on the relationship between marketing capabilities and innovative capabilities, this study reveals important organisational and behavioural factors. The finding is consistent with market orientation's thesis in terms of the salience of organisational culture in learning and acquiring new knowledge to build marketing capabilities. This also implies that the notion that building and mobilising new marketing capabilities to enhance innovative capabilities does not involve the mere acquisition

of market knowledge but require learning through exploration and exploitation. In addition, learning reflects that the changing nature of technology and the way firms adapting capabilities to meet new challenges and market demands. Thus, learning orientation provides some explanation on why different firms possessing similar marketing capabilities may exhibit differences in the relative impact of marketing capabilities on innovative capabilities.

Fourth, this study contributes to further understanding of a firm's innovative capabilities by examining deeper relationship of innovative capabilities with marketing capabilities, digital technology and learning orientation. The study is perhaps among the first to test empirically theoretical reasons for enhancing innovative capabilities through the relationships of digital technology and learning orientation. In particular, the absence of significant impact of certain individual marketing capabilities (communications capability, market information management capability and market planning capability) suggests new theoretical implications that are unavailable in the extant literature. One possible explanation for the strong positive impact of marketing capabilities on innovative capabilities is due to the influence of digital technology and learning orientation. As such, this study suggests that a firm must exploit digital technology and cultivate some level of its culture embedding learning orientation. This is line with prior research on overcoming the capability-rigidity trap to develop radical innovations by balancing static view of capability exploitation with learning as a dynamic theory.

Fifth, the study contributes to data and method in the marketing literature in terms of testing and validating a new construct of digital technology. Following the procedures of scale development, this study systematically tests different levels (organisational, network, marketing and operational) of digital technology application to account for collective technologies that facilitate integration and information sharing. This broad perspective reinforces that technological linkages permeate across functional units, and simultaneously lead to a better development and integration of marketing capabilities. The digital technology measure fills a gap in the extant literature on the role of digital technology in business and management. Nonetheless, further research should replicate and validate the digital technology construct to ensure it elicits the effects of digital technology on firm performance especially distinguishing different product-markets and industry sectors.

6.3 Limitations

As with every research, the scope and objectives of this study give rise to several limitations. The first is concerned with trade-off decisions in the conceptualisation of the constructs in the study. Drawing on theory, the literature and the results of the data analysis, this study examined eight specific marketing capabilities validated in a small number of empirical studies. This precluded other potentially relevant individual marketing capabilities (e.g., branding) and higher-level integrative marketing capabilities such as customer relationship management. Similarly, the choice of innovative capabilities measure based on two sub-measures of incremental

innovation and radical innovation may overlook other measures related to process innovation in innovative capabilities. While the study controlled for several factors in the data analysis, the focus of this study on marketing capabilities exclude other organisational capabilities. Moreover, external factors may explain innovative capabilities such as government initiatives and assistance could influence the extent of a firm's innovative capabilities. Although one of the main contributions of this study is the analysis of moderating and mediating relationships of learning orientation and digital technology, there also other possible moderators and/or mediators for the relationship between marketing capabilities and innovative capabilities. For example, trust has been shown to be a significant moderator of firm performance especially in the context of inter-firm relationships. Another limitation is concerned with the extent to which the analysis of marketing capabilities captured a firm's networks of relationships. While the measures are based on a network perspective from a focal firm, it would be necessary to collect data from multiple parties to account for networks of relationships.

Secondly, the data of the study influenced the research design and analytical techniques used in the data analysis. As a cross-sectional study, it is not possible for the study to explain changes resulting from digital technology and learning orientation as well as marketing capabilities development. Inevitably, the results provide a relative lack of depth into specific relationships for understanding of any single marketing capabilities. Although the study followed a procedure to minimise survey bias, it is impossible to eliminate the potential bias inherent in the survey instrument such as respondent bias. The data of the study have been collected from a

broad range of different industry sectors. While this may increase relevance of the findings across industry sectors, industry-specific differences may require different marketing capabilities and/or impact differently on innovative capabilities. The primary use of quantitative techniques in the data analysis served the purpose of examining the hypothesized relationships. However, quantitative results may mask underlying reasons or explanations for understanding the relationship between marketing capabilities and innovative capabilities.

Thirdly, theoretical positioning of the study confines insights into certain aspects of enhancing innovative capabilities through marketing capabilities. The focus of marketing capabilities on interdependent and collective individual capabilities does not address how firms should deploy and integrate higher-order marketing capabilities. Although it has been shown that learning orientation provides support for the relationship between marketing capabilities and innovative capabilities, little is known about how firms develop learning activities to support innovation. In particular, this learning orientation construct does not address how firms should explore and exploit marketing capabilities to enhance innovative capabilities. Organisational learning theory indicates that firms need to ensure that they balance their exploration knowledge development and exploitation knowledge deployment efforts. Although the conceptualisation of digital technology includes application of the Internet and information technology, this study does not examine how firms can best take advantage different technologies to support marketing capabilities and enhance innovative capabilities.

6.4 Future Research

The above main limitations present future research avenues. Further research could conceptualise marketing capabilities as a higher-order integrative capability that include other strategic capabilities such as customer relationship management. On the same note, future research could explore and examine the innovative capabilities construct to focus on gaining deeper insights into process innovation than outcomes based on incremental and radical innovations. Although the sample of data is reasonably diverse in terms of cross industry sectors, future research may examine disaggregated sub-samples of industries and/or to provide dedicated analysis of just one sub-sample or industry in a country. This might give a different set of results or alter the proposed framework. By replicating the study's framework to other sectors, future research would improve the measures of the study and enhance validity of the framework. In addition, further research could collect qualitative data and/or develop case studies to gain deep insights into marketing capabilities development and innovative capabilities. This includes the potential of analysing changes in innovative capabilities over time using longitudinal data. Future researchers should develop and analyse a firm's network perspective based on multiple parties using fine-grained measures to advance market orientation and resource-based view beyond a single firm and internal resources of the firm respectively.

Beyond further research avenues based on the limitations, the present study suggests three important new areas for further research. First, a strong mediating effect of digital technology on the relationship between marketing capabilities and innovative capabilities indicates that additional research is required to identify advantages derived from digital technology in terms of enabling and facilitating the mobilisation of marketing capabilities for innovation. A useful starting point of focus for such research is the role of digital technology in enhancing new product development capabilities. This might illuminate how digital technology coalesce and/or facilitate new product development capability through stages of new product development. Thus, future research may provide insights that enable managers to better leverage specific digital technology to enhance marketing capabilities for the purpose of innovation.

Second, while the results indicate that marketing capabilities demonstrate relative impact in terms of individual capabilities, further research needs to differentiate marketing capabilities as regard their effect on marketing strategy such as tactical and strategic impacts. The interdependent nature of marketing capabilities means that more insights into a single marketing capabilities would enhance understanding of its role in innovative capabilities development for a specific industry or product-market. One instance of such research area is to investigate how marketing communications capability can be exploited using traditional media and digital technology for commercialising a new product. This may shed new light on the role of marketing communications capability under different conditions and its interplay with other marketing capabilities as well as digital technology.

Third, more research is needed to understand the support of learning orientation in the relationship between marketing capabilities and innovative capabilities. Although prior research on market orientation has shown that learning is compatible with a market-oriented behavioural stance, little understanding of the types of organisational culture, leadership and activities that have the potential to influence learning orientation and consequently, marketing capabilities. For example, future research about the types of explorative and exploitative learning activities by generating, disseminating and responding to market needs may provide insights into effective development of marketing capabilities that enhance innovative capabilities. In addition, market and learning orientations toward both satisfying customers and enabling acquisition of new knowledge for innovation raises the important question of how firms balance trade-offs between developing new marketing capabilities and enhancing existing marketing capabilities.

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APPENDICES

Appendix 1- Questionnaire

BOURNEMOUTH UNIVERSITY

THE BUSINESS SCHOOL

CENTRE FOR RESEARCH IN MANAGEMENT

Duygu Okten, BSc, MA

PhD Graduate Researcher

May, 2010



May, 2010

Dear Sir/Madam,

REF: Enabling Digital Innovation

Please excuse my intrusion. I am a graduate researcher working on my PhD thesis with Dr. Julie Robson and Dr Yasmin Sekhon about enabling digital innovation at Bournemouth University. We seek your participation in this survey because we value your input to the future of digital innovation.

As emphasised by the UK Government, digital innovation is one of the main pathways for organisations to propel the economy out of recession as well as to achieve future economic growth. On this note, your views about mobilising capabilities and/or technologies would make a difference to understanding how organisations take advantage of market driven approach to enhance digital innovation. While we appreciate that not every organisation may implement or adopt digital innovation, your views on the factors concerning the development of innovative capabilities would be pivotal in shaping the knowledge of digital innovation. The relevance and accuracy of our research findings depend upon your generous cooperation. We assure you confidentiality and the data obtained for this survey will abide by the Market Research Society ethical codes.

By completing the attached questionnaire, we hope that you will find the concerns for understanding digital innovation beneficial for your organisation. To show our gratitude for your cooperation, we would donate one British Sterling pound to support a major charity, The Cancer Research UK, for every completed questionnaire. We hope to raise as much donations as possible for this charitable cause through your kind cooperation. We would also be obliged to share with you our findings in an executive summary upon successful completion of this project. For your convenience, please use the enclosed self-addressed and stamped envelope to return the questionnaire. Thank you.

Yours faithfully,

Duygu Okten

Email: dokten@bournemouth.ac.uk

PARTICIPANT INFORMATION SHEET

OBJECTIVES OF THIS RESEARCH

- To investigate the extent to which marketing capabilities impact on a firm's marketing performance through digital technology.
- To examine the antecedents of networks that influence network marketing capabilities.

PARTICIPANTS

- Managers that deal with external liaison of any organisation (for-profit and non-profit) with a minimum of 25 employees.

100% CONFIDENTIALITY

- Participants' information will be used for academic purposes only and confidentiality and anonymity will be maintained.
- All resulting reports will reference general data, making it impossible to recognise individual responses.

KEY TERMS

- **Marketing capability:**
A firm's marketing capability is concerned with its ability to satisfy different stakeholder needs and respond to changes in the environment.
- **Market orientation:**
A market-oriented firm systematically collects, analyses and disseminates market intelligence throughout the firm to be responsive to market trends.
- **Digital technology:**
Digital technology encompasses the application of information communication technology through the Internet and/or mobile technology to gain advantages of time and space (e.g., real time data, remote tracking, and location-based services). A firm that capitalizes on digital technology may generate positive effects on business performance (e.g., cost savings, customer satisfaction, new products).
- **Innovative capability:**
A firm's innovative capability is concerned with its ability to use, mobilise, access, develop or connect resources of other firms in the network.

- Learning orientation:
A learning oriented firm is inclined to promote organisational activities and support behavioural processes to rectify management problems and/or acquire new knowledge.
- Individual relationships, where there is emphasis on more than one or beyond a dyad relation. Multiple relationships, in that a firm might be connected to various relations. Different relationships of a firm rather than solely based on a focal or dyad relation. Collective relationships stressed the presence of more than one party in the development of marketing capability.

ADDITIONAL INFORMATION

- This survey adheres to ethical codes of the Market Research Society.
- By completing and returning the Survey you are agreeing to take part in this study. However, you are under no obligation to complete it and free to withdraw at any time.
- The Survey should take **NO LONGER THAN 20 MINUTES**
- **We would donate one British Sterling pound to the Cancer Research UK for every completed questionnaire to show our appreciation of your effort.**

CONTACT INFORMATION

Address correspondence to Duygu Okten Bournemouth University Business School, 89 Holdenhurst Road, Bournemouth BH8 8EB or email: digitalproject2010@gmail.com

HOW TO FILL IN THE SURVEY

To complete the Survey, tick the box corresponding to the answer you most agree with:

EXAMPLE ITEMS	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Their area of expertise is very different from ours	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

- Do not spend too much time on any one answer – your first response is usually the best
- A number of questions will appear quite similar. They are designed this way to better understand your views
- Even though it may be hard to decide, please try not to skip any questions.

Section A

PART 1- COMPANY PERFORMANCE

Using a seven-point running scale of '1= very good' to '7 =very poor' please rate the following financial results for your firm for the last year.

Using a seven-point running scale of '1= very high' to '7 =very low' please rate

Overall performance¹	Very Good	Good	Mildly Good	Neither Good or Poor	Mildly Poor	Poor	Very Poor
a Overall performance in your organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b Relative to competition overall performance in your organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c Overall profitability.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

following comments for your organisation served market segment over the past 3 years.

New Product Success²	Very High	High	Mildly High	Neither High or Low	Mildly Low	Low	Very Low
a New product introduction rate relative to largest competitor.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b New product success rate relative to largest competitor.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c Degree of product differentiation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d First to market differentiation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e New product cycle time (i.e., inception to rollout) relative to competition.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

¹ Adapted from Jaworski and Kohli, 1993

² Adapted from Baker and Sinkula, 1999

Firm Performance	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Our return on investment (ROI) for the last three years has surpassed our main competitors' performance.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b Our return on assets (ROA) for the last three years has been above our industry average.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c Our return on sales (ROS) for the last three years has been higher than our main competitors.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

PART 2- Firm’s Network Perspective of Marketing Capabilities³⁴

Using a seven-point running scale of ‘1= strongly agree’ to ‘7 =strongly disagree’ please rate the importance of the following marketing capabilities relative to your business and competition from your individual relationships (customers, suppliers, technology partners, multipliers). **We have been..**

Firm’s Network Perspective of Marketing Capabilities Pricing	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Developing pricing skills and techniques from individual relationships to respond quickly to market changes.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b Developing knowledge of competitors’ pricing tactics through coordination of multiple relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c Developing an effective job of pricing products/services from individual relationships	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d Developing a system from different relationships to monitor competitors’ prices and price changes.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

³ Adapted from Eng, T.Y., Spickett-Jones,G.,2010

⁴ All current marketing capability items are adapted to the network level for this specific study.

Firm's Network Perspective of Marketing Capabilities Product Development	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Learning from individual relationships to develop new products/services.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Developing new products/services through coordination of multiple relationships and exploitation of current or future production skills and/or technology.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Acquiring new technology to develop products/services from different partners.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Developing knowledge from individual relationships of coordinated new product launches.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Gaining knowledge of customer needs from different relationships to match new product development.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Firm's Network Perspective of Marketing Capabilities Channel Management	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Developing good individual relationships with distributors.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Attracting and retaining collective distribution relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Gaining knowledge of distributors' partners through coordination of multiple relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Striving to add value from both directly and indirectly connected relationships to our distributors business.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Developing multiple partnerships with our distributors and their business partners.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
f. Aiming to provide high levels of service through coordination of multiple distribution relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Firm's Network Perspective of Marketing Capabilities Marketing Communication	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Knowledgeable of developing and executing advertising programmes from individual relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Developing advertising management and creative skills from different relationships	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Using public relations skills for both directly and indirectly connected relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Developing brand image skills and positioning for both directly and indirectly connected relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Knowledgeable in managing company image and reputation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Firm's Network Perspective of Marketing Capabilities Market Information Management	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Gathering information about customers and competitors from individual relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Using market research skills from different relationships to develop effective marketing programmes.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Monitoring customer wants and needs from both indirect and direct relationships and network relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Using marketing research information from different relationships for decision making.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Firm's Network Perspective of Marketing Capabilities Selling	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Training our salespeople from individual relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Developing sales management planning and control systems from individual relationships	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Developing selling skills of salespeople from different relationships/	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Providing effective sales support to sales force comprising individual relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Firm's Network Perspective of Marketing Capabilities Marketing Planning	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Developing marketing planning skills through coordination of multiple relationships.	□1	□2	□3	□4	□5	□6	□7
b Developing the ability to effectively segment and target market of individual relationships.	□1	□2	□3	□4	□5	□6	□7
c Developing marketing management skills and processes through coordination of multiple relationships.	□1	□2	□3	□4	□5	□6	□7
d Developing creative marketing strategies through coordination of multiple relationships.	□1	□2	□3	□4	□5	□6	□7
e Developing thorough knowledge of marketing planning processes with individual relationships.	□1	□2	□3	□4	□5	□6	□7

Firm's Network Perspective of Marketing Capabilities Marketing Implementation	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Knowledgeable in effective allocation of marketing resources through coordination of multiple relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Developing effective delivery of marketing programmes collectively with different partners.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Coordinating with individual relationships on how to translate marketing strategies into action.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Knowledgeable in executing marketing strategies effectively from different relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Developing a monitoring system for marketing performance through coordination of multiple relationships.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

PART 3- INNOVATIVE CAPABILITY⁵

Using a seven-point running scale of ‘1= very stronger than competition’ to ‘7=very weaker than competition’ please rate your organisation’s *capability* to generate the following types of innovations in the products/ services you have introduced in the last five years?

Incremental Innovative Capability	Very Stronger Than Competition	Stronger Than Competition	Somewhat Stronger Than Competition	Similar to Competition	Somewhat Weaker Than Competition	Weaker Than Competition	Very Weaker Than Competition
a. Innovations that reinforce your prevailing product/service lines.	□ 1	□ 2	□ 3	□ 4	□ 5	□ 6	□ 7
b. Innovations that reinforce your existing expertise in prevailing products/services	□ 1	□ 2	□ 3	□ 4	□ 5	□ 6	□ 7
c. Innovations that reinforce how you currently compete.	□ 1	□ 2	□ 3	□ 4	□ 5	□ 6	□ 7

⁵ Adapted from Tushman and Anderson, 1986 and Henderson and Clark,1990.

Radical Innovative Capability	Very Stronger Than Competition	Stronger Than Competition	Somewhat Stronger Than Competition	Similar to Competition	Somewhat Weaker Than Competition	Weaker Than Competition	Very Weaker Than Competition
a. Innovations that make your prevailing product/service lines obsolete.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Innovations that fundamentally change your prevailing products/services.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Innovations that make your existing expertise in prevailing products/services obsolete	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Section B

PART 1- LEARNING ORIENTATION⁶

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' to what extent do the following statements apply to your organisation?

Learning Orientation Commitment to Learning	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. Managers basically agree that our organisational ability is the key to our competitive advantage.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. The basic values of this organisation include learning as key to improvement.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. The sense around here is that employee learning is an investment, not an expense.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. Learning in my organisation is seen as a key commodity necessary to guarantee organisational survival.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Our culture is one that does not make employee learning a top priority. R	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
f. The collective wisdom in this organisation is that once we quit learning, we endanger our future.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

⁶ Adapted from Sinkula, Baker and Noordewier,1997.

Learning Orientation Shared vision	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. There is a well-expressed concept of who we are and where we are going as a business unit.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b.. There is a total agreement of promoting learning amongst different units or departments vision across all levels, functions, and divisions	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. All employees are committed to the goals of this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d.. Top leadership believes in sharing its vision across all units, functions, departments including employees at bottom levels	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. We do not have a well-defined vision for the entire organisation .R	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Learning Orientation Open-Mindedness	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a. We are not afraid to reflect critically on the shared assumptions we have about the way we do business.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b. Managers in this organisation do not want their “view of the world” to be questioned.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c. Managers encourage employees to “think outside of the box.”	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d. An emphasis on constant innovation is not a part of our corporate culture.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e. Original ideas are highly valued in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Learning Orientation	Strongly	Somewhat		Somewhat		Strongly	
	Agree	Agree	Agree	Undecided	Disagree	Disagree	Disagree
Intra-organisational knowledge sharing⁷							
a There is a good deal of organisational conversation that keeps alive the lessons learned from history.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b We always analyse unsuccessful organisational endeavours and communicate the lessons widely.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c We have specific mechanisms for sharing lessons learned in organisational activities from department to department (unit to unit, team to team).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d Top management repeatedly emphasises the importance of knowledge sharing in our company.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e We put little effort in sharing lessons and experiences.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

⁷ Adapted from Calantone, Cavusgil and Zhao, 2002.

PART 2- DIGITAL TECHNOLOGY⁸

Using a seven-point running scale of ‘1= strongly agree’ to ‘7 =strongly disagree’ to what extent do the following statements apply to your organisation?

Digital technology - Organisational level	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a We have been integrating our activities, functions and processes in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b We have been using integrated systems of communications and technology in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c We have been sharing digital technology across functions, departments and units in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Digital technology - Network level	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a We have been using an integrated information system with our different business partners.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b We have been sharing databases with our different business partners (e.g., extranet).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c We have been participating in electronic platform for business or consumer exchange (e.g., e-marketplaces).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d We have been leading and/or adopting new technology to cooperate and compete in our business.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

⁸ New scale created for this specific study

Digital technology - Marketing level	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a We have been using digital technology to satisfy customer needs and compete in the marketplace.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b We have been using electronic or Internet-based systems to conduct our marketing activities (e.g., electronic customer relationship management).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c We have been using integrated market research information systems to facilitate information sharing across functions, departments and units in this organisation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d We have not been servicing our customers through the Internet (e.g., website, customer fulfilment).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Digital technology - Operational level	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a We have been monitoring our business activities using technology (e.g., RFID, EPOS).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b We have been using remote technology applications to enhance our competitiveness (e.g., location-based services, mobile services).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c We have been using digital or technological devices to facilitate communications in this organisation (e.g., free internal messaging services).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d We have not been applying technology software applications to control and/or improve our business activities (e.g., alert for low stocks, employee productivity, sales personnel performance).	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

PART 3- ENVIRONMENTAL UNCERTAINTY

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' to what extent do the following statements apply to your organisation's environment?

Technology uncertainty⁹	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Our industry is characterised by rapidly changing technology.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b If we don't keep up with changes in technology, it will be difficult for us to remain competitive.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c The rate of process obsolescence is high in our industry.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d The production technology changes frequently and sufficiently.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Competitive intensity¹⁰	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a There is high number of competitors.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b There is intense price competition.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c There is high competitive intensity in this industry.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d Our major competitors possess strength in distribution system.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e Our major competitors possess strength in advertising.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

⁹ Adapted from Davis,1993

¹⁰ Adapted from Jaworski and Kohli,1993.

MARKET DYNAMISM¹¹

Using a seven-point running scale of '1= strongly agree' to '7 =strongly disagree' to what extent do the following statements apply to your organisation regarding the form, care of and use of relationships to partners (customers, suppliers, technology partners, multipliers)?

Market Dynamism	Strongly Agree	Agree	Somewhat Agree	Undecided	Somewhat Disagree	Disagree	Strongly Disagree
a Our customers' product preferences change quite a bit over time.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
b New customers tend to have product-related needs that are different from those of our existing customers.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
c Our customers tend to look for new products all the time.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
d Our customers tend to have stable product preferences. R	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
e We are witnessing changes in the type of products/services demanded by our customers.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

¹¹ Adapted from Jaworski and Kohli 1993

COMPANY SUMMARY

1. Organisation Name

2. In which industry (or industries) is your firm active?

3. How many years has your company been active in its current industry?

4. How many years has your company been in business?

If you are a subsidiary of a larger organisation, how many years has your subsidiary been in business?

5. How many employees does your company employ?

If you are a subsidiary unit of a larger organisation, how many employees are there in your subsidiary?

6. In which department or functional area do you work?

7. _____
Within your industry, do you consider your company “Large”, “Medium”
or “Small”?

8. Please give an estimate of the percentage of your annual company’s net
profit reinvested in information technology and/or research and
development:

9. On average, how many new products are brought to market annually in
your industry?

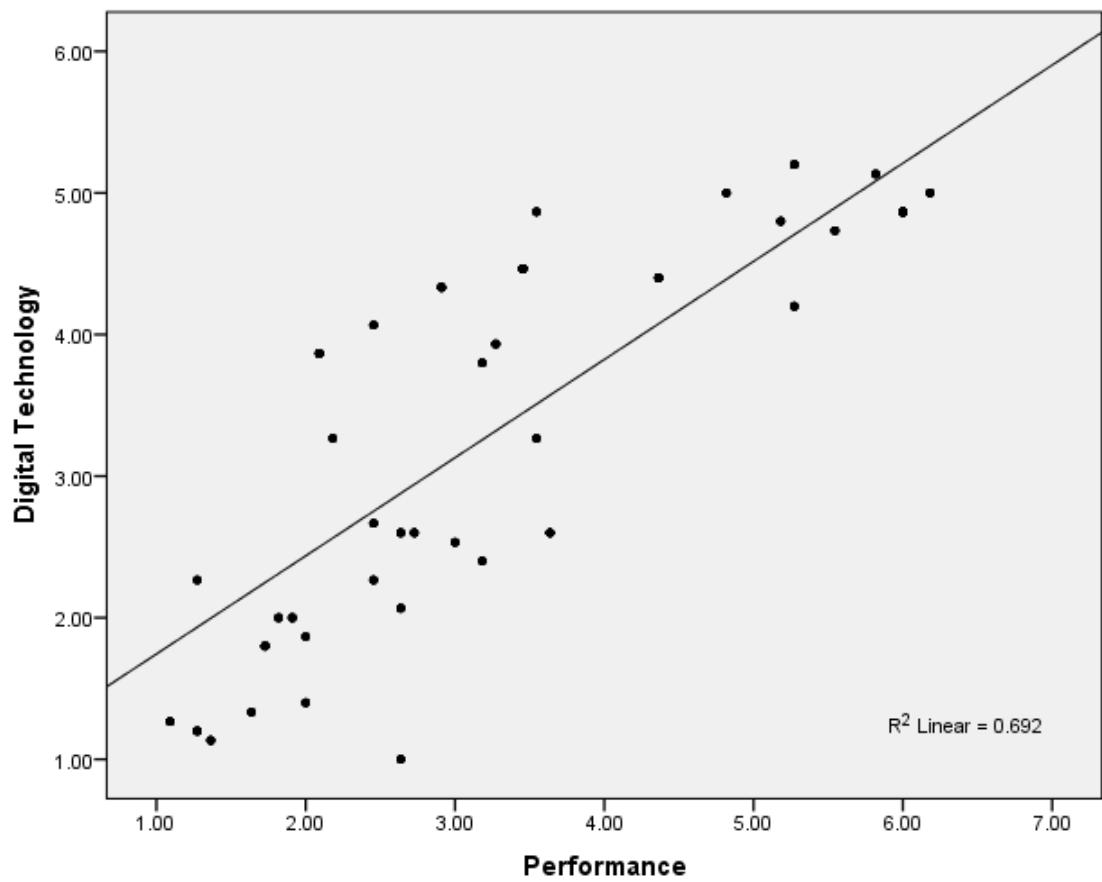
10. In how many different product markets does your company operate?

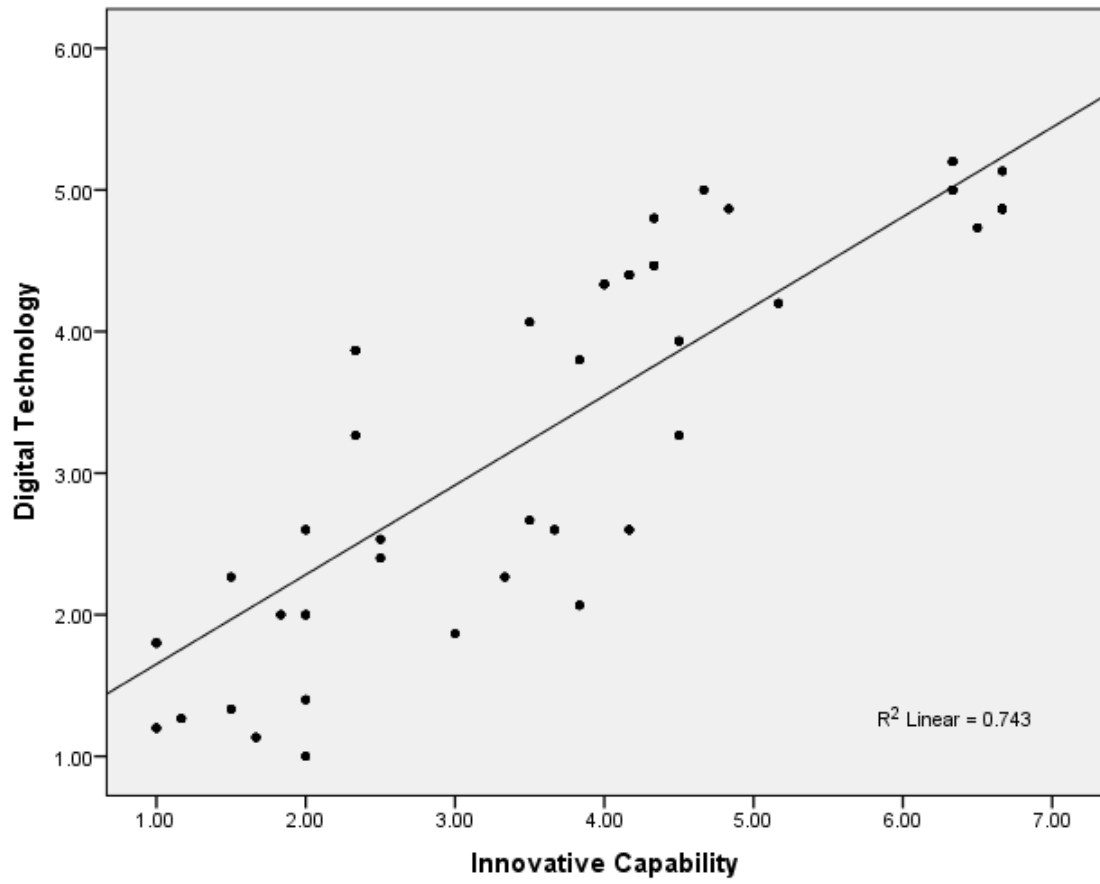
11. How long is the average product life cycle in your industry?

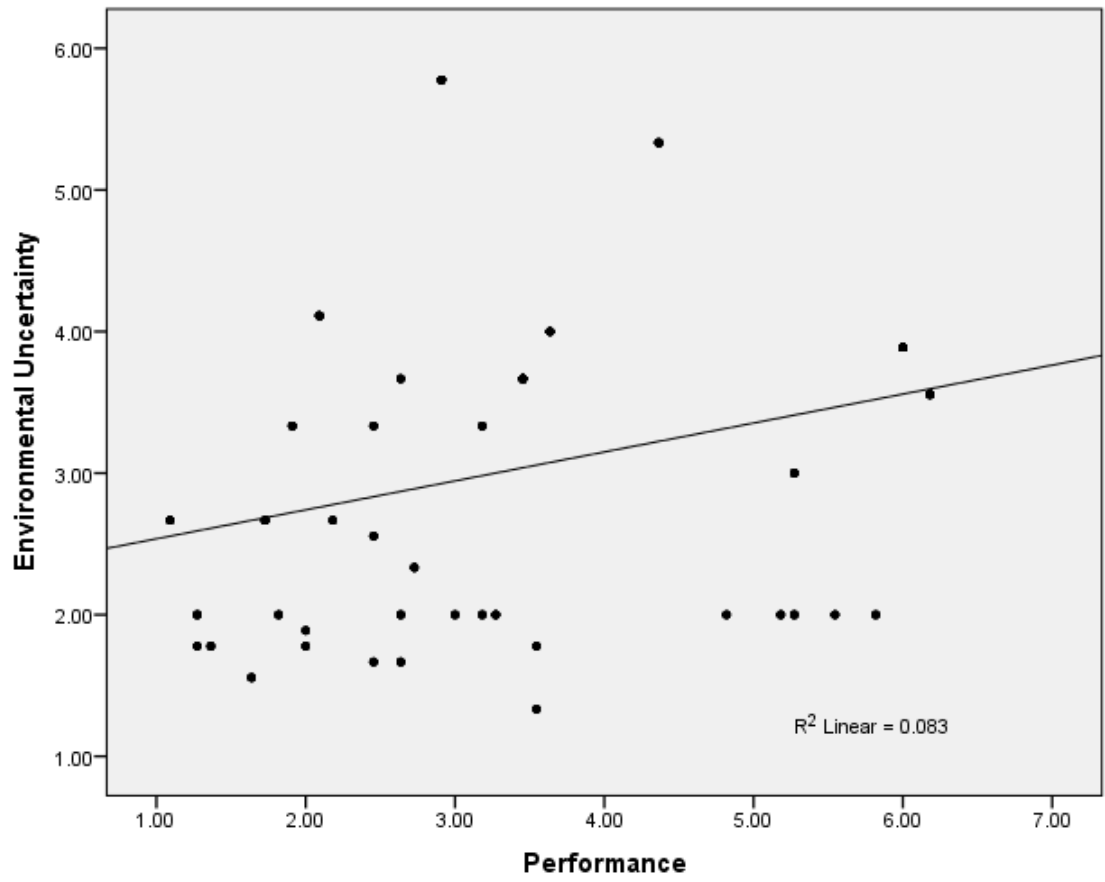
At your last birthday what was your age?

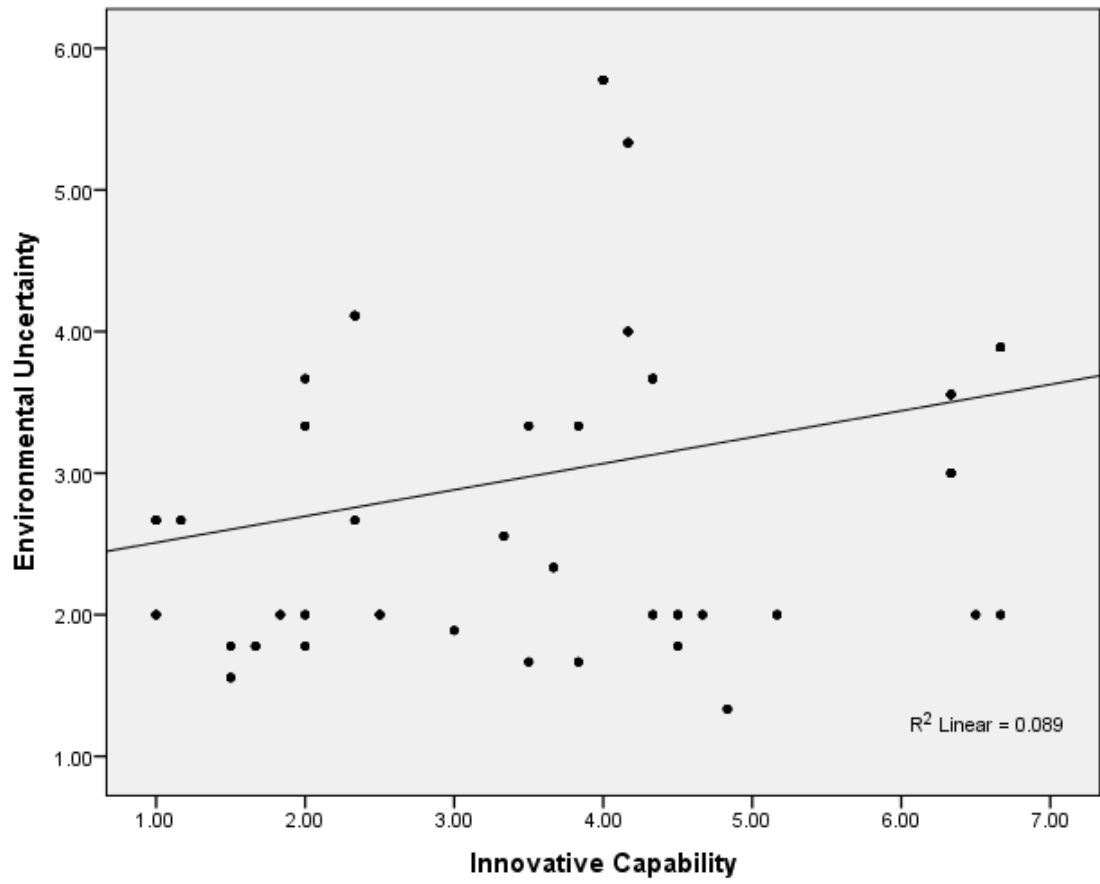
What is your gender? ___ Male ___ Female

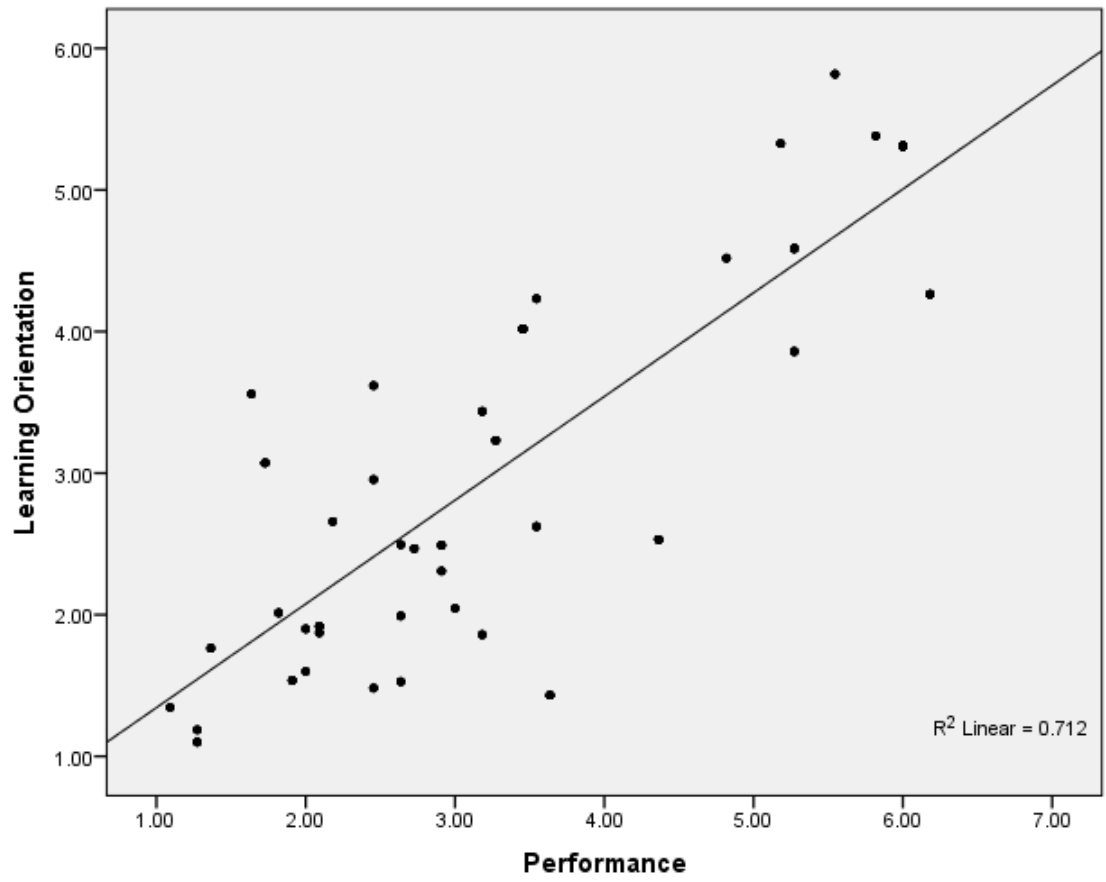
Appendix 2-Scatter Plot Charts

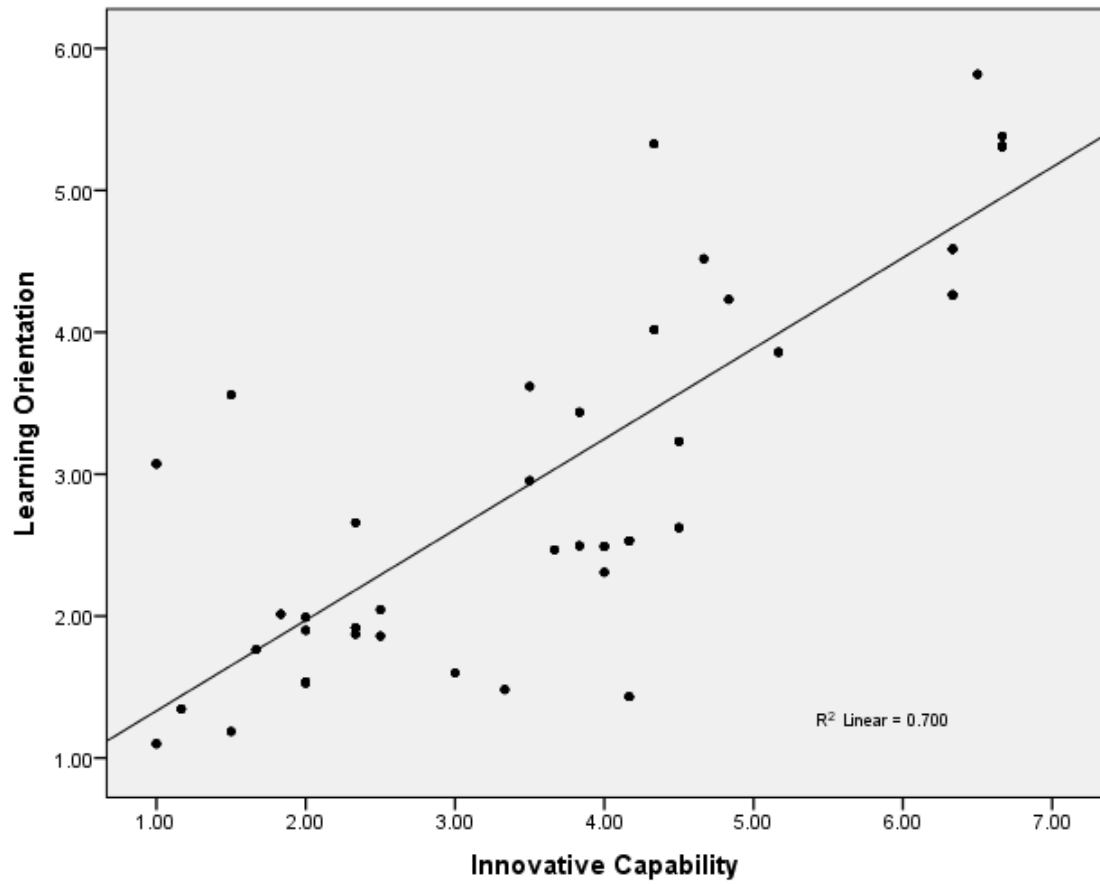


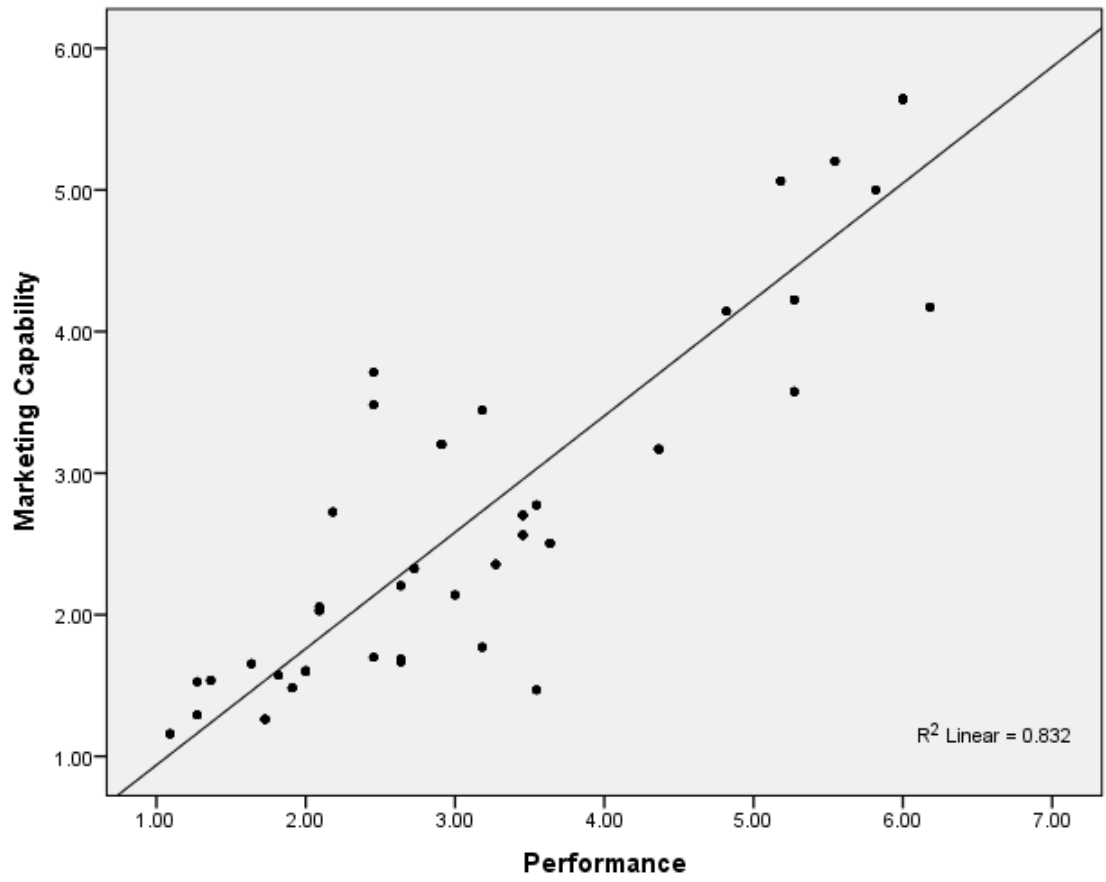


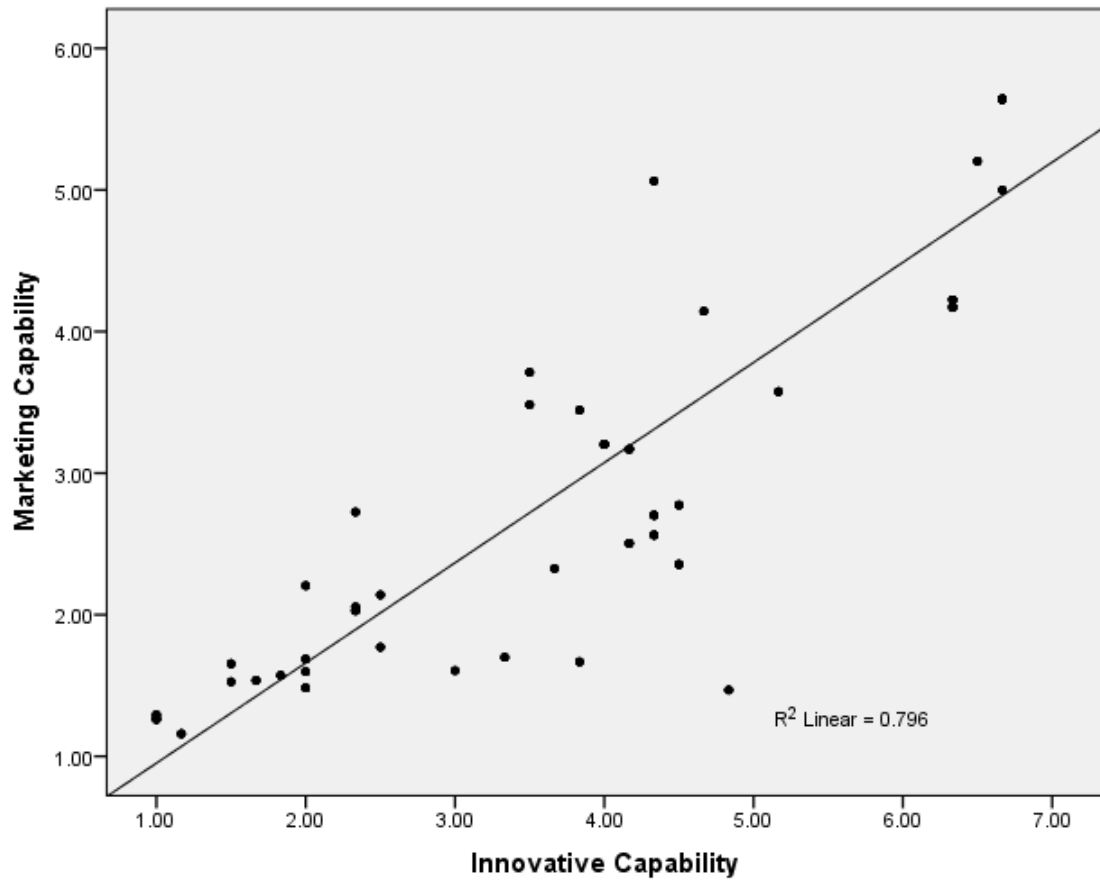


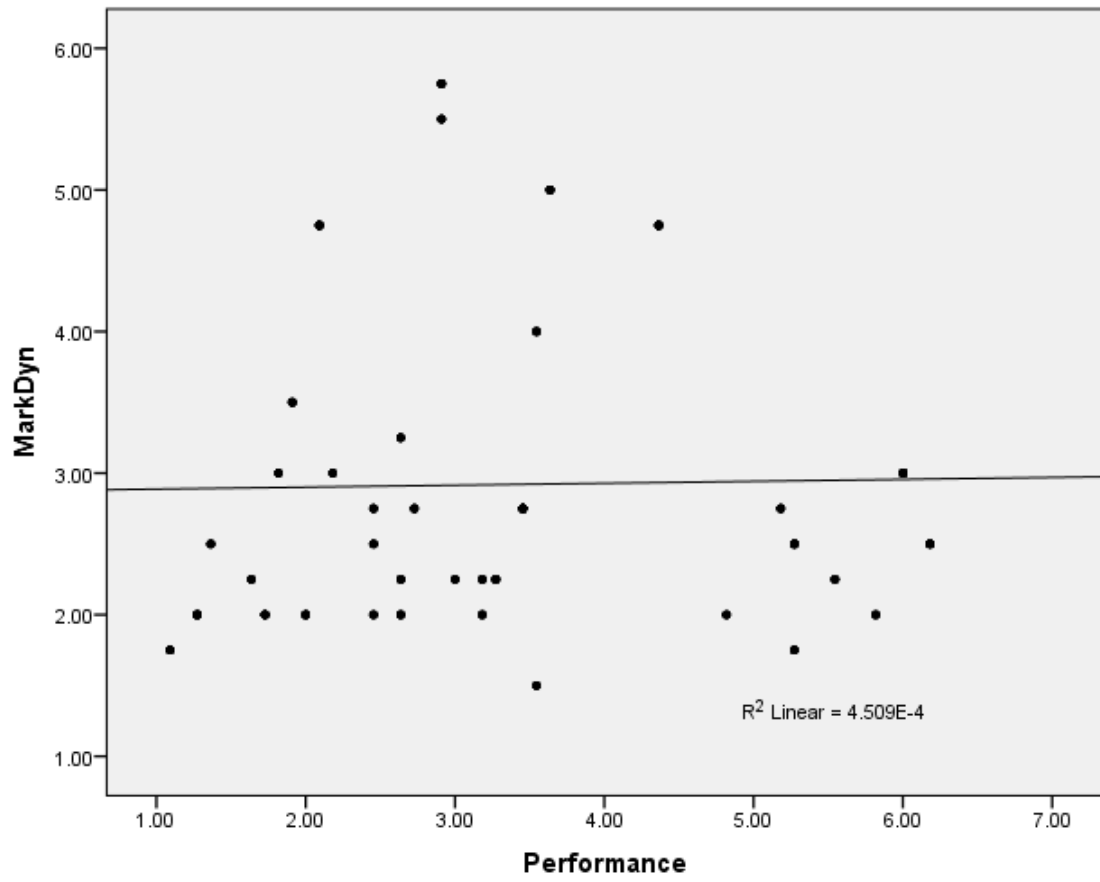


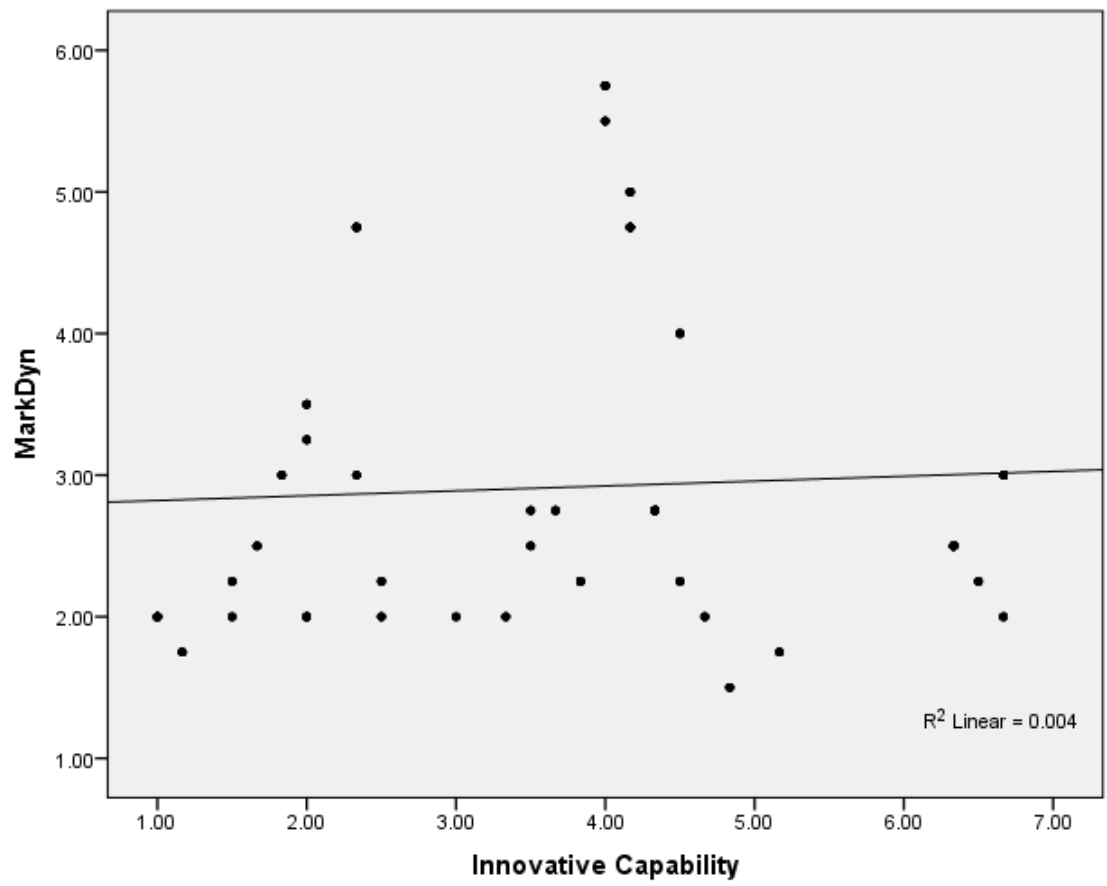












Appendix 3- List of Publications

- Eng,T.Y and Okten, D., Exploring a dynamic framework of innovative capability: A theoretical integration of technological and marketing capabilities., *Technology Analysis and Strategic Management*, 2011, Vol.23, No.9, October 2011, 947-950.