

PRODUCT MANAGEMENT AS FIRM CAPABILITY

by

David Cecil Roach

Submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

at

Dalhousie University
Halifax, Nova Scotia
August 2011

© Copyright by David Cecil Roach, 2011

DALHOUSIE UNIVERSITY
INTERDISCIPLINARY PHD PROGRAM

The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled “PRODUCT MANAGEMENT AS FIRM CAPABILITY” by David Cecil Roach in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

Dated: August 22, 2011

External Examiner: _____

Co-Research Supervisor: _____

Co-Research Supervisor: _____

Examining Committee: _____

Departmental Representative: _____

DALHOUSIE UNIVERSITY

DATE: August 22, 2011

AUTHOR: David Cecil Roach

TITLE: PRODUCT MANAGEMENT AS FIRM CAPABILITY

DEPARTMENT OR SCHOOL: Interdisciplinary PhD Program

DEGREE: PhD CONVOCATION: October YEAR: 2011

Permission is herewith granted to Dalhousie University to circulate and to have copied for non-commercial purposes, at its discretion, the above title upon the request of individuals or institutions. I understand that my thesis will be electronically available to the public.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

The author attests that permission has been obtained for the use of any copyrighted material appearing in the thesis (other than the brief excerpts requiring only proper acknowledgement in scholarly writing), and that all such use is clearly acknowledged.

Signature of Author

TABLE OF CONTENTS

LIST OF TABLES	vii
LIST OF FIGURES.....	viii
ABSTRACT	ix
LIST OF ABBREVIATIONS USED.....	x
ACKNOWLEDGEMENTS	xi
CHAPTER 1 INTRODUCTION.....	1
1.1. Introduction	1
1.2. Product management within the context of the firm	2
1.3. Theoretical framework and propositions.....	6
1.3.1. The resource based view of the firm and product management.....	6
1.3.2. The RBV's relationship to marketing theory	10
1.3.3. Product management and boundary spanning.....	12
1.3.4. Market orientation	15
1.3.5. Innovativeness	19
1.3.6. Product management as firm capability	22
1.3.7. External spanning activities.....	24
1.3.8. Internal spanning activities.....	25
1.3.9. SMEs and product management capability	27
1.4. Research question and direction	28
1.5. Conclusion.....	30
1.6. References	30
CHAPTER 2 THE IMPACT OF PRODUCT MANAGEMENT ON SME PERFORMANCE: EVIDENCE FROM CANADIAN FIRMS....	37
2.1. Abstract.....	37
2.2. Introduction	38
2.3. Conceptual background – Product management	39
2.4. Measurement instrument development.....	42
2.4.1. SME orientation and product management	50
2.5. Methodology.....	52
2.6. Analysis and results.....	53

2.7.	Discussion.....	56
2.8.	Limitations and future research	58
2.9.	Conclusions	59
2.10.	Appendix A – Performance measurement.....	61
2.11.	References	61
CHAPTER 3	THE IMPACT OF PRODUCT MANAGEMENT ON SME FIRM PERFORMANCE.....	66
3.1.	Abstract.....	66
3.2.	Introduction	68
3.3.	Literature review	70
3.3.1.	Product management literature.....	70
3.3.2.	Product management and SMEs.....	71
3.3.3.	Product management, market orientation and performance.....	72
3.4.	Methodology and model development	74
3.4.1.	Sample and data collection.....	74
3.4.2.	Construct development.....	75
3.5.	Model specification and hypothesis development.....	76
3.6.	Analysis and results.....	79
3.6.1.	Method of analysis	79
3.6.2.	The measurement model	80
3.6.3.	Evaluation of the structural model	82
3.7.	Results	83
3.8.	Discussion.....	85
3.9.	Conclusions, implications and limitations.....	86
3.10.	Appendix	88
3.11.	References	91
CHAPTER 4	DOES PRODUCT MANAGEMENT CAPABILITY INFLUENCE FIRM PERFORMANCE?	96
4.1.	Abstract.....	96
4.2.	Introduction	96
4.3.	Theoretical framework	99
4.4.	Hypothesis development	102
4.4.1.	Market orientation	102

4.4.2.	Innovativeness	105
4.4.3.	Product management	107
4.4.3.1.	External product management.....	109
4.4.3.2.	Internal product management.....	110
4.4.4.	Performance measurement	112
4.5.	Methodology.....	113
4.5.1.	Sample size and characteristics	113
4.5.2.	Measurement of constructs.....	114
4.5.3.	Analysis	116
4.5.3.1.	Measurement model	117
4.5.3.2.	Structural model	120
4.5.4.	Results	123
4.6.	Discussion.....	125
4.6.1.	Theoretical implications.....	125
4.6.2.	Managerial implications.....	128
4.7.	Conclusions, limitations and future research.....	130
4.8.	References	133
CHAPTER 5	CONCLUSIONS	141
5.1.	On the first study	141
5.1.1.	First study limitations.....	142
5.2.	On the second study.....	143
5.2.1.	Second study limitations	144
5.3.	On the third study	144
5.3.1.	Third study limitations	145
5.4.	Academic contribution	147
5.5.	Managerial contribution	149
5.6.	Conclusion.....	150
5.7.	References	153
Bibliography	155
Appendix – Copyright waiver forms.....		167

LIST OF TABLES

Table 2.6-1 - Reliability Statistics.....	54
Table 3.4.2 - Results of Principal Component Analysis after Varimax rotation.....	76
Table 3.6.2-1 - Factor Loadings (bolded) and cross loadings.....	81
Table 3.6.2-2 - Measurement Model Assessment.....	82
Table 4.5.2 - Constructs and measurement items.....	115
Table 4.5.3.1-1 - Factor Loadings (bolded) and cross loadings.....	118
Table 4.5.3.1-2 - Measurement model assessment.....	119
Table 4.5.3.2 - Results of Mediation tests.....	122

LIST OF FIGURES

Figure 3.5-1 - Product Management Model.....	77
Figure 3.6-1 - Product Management Model with Structural Loadings.....	83
Figure 4.3-1 - Boundary Interfaces.....	101
Figure 4.5-1 - Fully saturated model with beta loadings and effect sizes.....	120
Figure 4.5-2 - Mediation Diagram.....	121

ABSTRACT

Product management as an organizational system has a long history of practice, which predates most modern academic management research. Its activities span the external environment of the firm, while simultaneously spanning across internal functional specialties of the organization. Thus product management obtains, codifies, simplifies and stores external information making it available to a responsive organization, which uses it to establish competitive advantage and ultimately superior performance.

Building on the resource based view of the firm and boundary theory, these spanning activities, which are heterogeneously dispersed across firms, are considered organizational capabilities. Drawing upon the extant product management literature, this research uses product management as a proxy for boundary spanning capabilities of the firm. These capabilities are then empirically measured against two well established firm capabilities; market orientation and firm-level innovativeness.

This research addresses a gap in the literature by establishing product management as a set of firm-level capabilities, distinct from the well established constructs of market orientation and innovativeness. Results indicate that external product management capability, defined as channel bonding activities, fully mediates the market orientation – firm performance relationship, while firm level innovativeness continues to have a small mediating effect on performance. Internal product management capabilities, defined as market and technical integration are shown to negatively moderate the external product management capability - firm performance relationship.

Theoretical implications include establishing a link between boundary theory and the resource based view of the firm. Practical implications include the strong relationship between external spanning capabilities and firm performance and the dampening effect of cross-functional integration on firm performance. This empirical link between product management boundary spanning practices and how firms ultimately perform could assist practitioners in allocating resources and managing the relationship between the marketing and technological factions of the organization. Most importantly this research establishes the hereto untested link between product management capability and firm performance.

LIST OF ABBREVIATIONS USED

BT	Boundary Theory
EPM	External Product Management
IPM	Internal Product Management
MO	Market Orientation
MORes	Responsive Market Orientation
PERF	Firm-level Performance
PM	Product Management
PM-F1	Channel Analysis & Support
PM-F2	Product positioning
PM-F3	Marketing & Technical Integration
RBV	The resource based view of the firm
SME	Small and Medium Size Enterprise

ACKNOWLEDGEMENTS

I would first like to thank my committee members Dr. Carolyn Watters and Professor Raymond Cote, who showed faith in my abilities and support for the vision of this research. I would specifically like to thank my co-supervisors Dr. Peter Gregson and Professor Emeritus Dr. Jack Duffy, whose guidance throughout this process was invaluable and whose advice, mentorship and friendship I hope benefit from for many years to come.

Most importantly to my wife Alex, the love of my life, who has stood by me in this and every other venture I have undertaken. It's now my turn to support you to become the artist that others will have the pleasure to appreciate. To my lovely daughters, Katherine, Isabelle and Olivia, who are growing up to become young women that I admire and respect, I look forward to helping you achieve all of your dreams.

CHAPTER 1 INTRODUCTION

1.1. INTRODUCTION

Product management as an organizational system has been around in its various incarnations for more than a century. Popularized by Proctor and Gamble Corporation in the 1930's, this "concept through to consumption" model took the "product" as the focal point of the firm's management system. Historically, the responsibility for the implementation of this model was delegated to a product manager, who acted as a mini-general manager of the product or product line. These individuals managed or influenced firm resources to optimize the performance of the product in the marketplace. As such, from concept through to development and marketing, the product manager was responsible for the seamless integration and optimization of these activities on behalf of the firm. The product management function was ultimately responsible for spanning inside and outside of the organization, assimilating information to optimize product performance.

This system was predominantly used in large consumer goods companies until the late 1960's, when a shift occurred as organizations became more sophisticated through functional specialization. This had two fundamental effects. First was the relegation of the product management function to specialist positions such as brand manager and technical service manager who reported vertically within the firm. The other was the transition of boundary spanning activities traditionally associated with this function to cross-functional groups. The latter occurred in direct response to the shortcomings of functional specialties, which created a disconnect between the organization and its customers. The great hope of cross-functional teams was that they would reconnect the organization with its customers by delivering products and services that truly satisfied their needs. This movement became widely accepted driven by the work of several academics and practitioners (Griffin and Hauser 1993, Cooper and Kleinschmidt 1993). The ultimate objective was to improve the firm's marketing orientation, while integrating innovation into their products; creating a more robust product-market match.. It did

however have one unintended effect; the lack of direct individual responsibility for the product within the modern organization.

Clearly, the rise and fall of the traditional product management system demonstrates the value of managing spanning activities by the firm. This core product management capability requires the ability to span both external and internal boundaries of the firm. This involves collection, interpretation and dissemination of information, while simultaneously cutting across functional boundaries to optimize product (and thus organizational) performance. Modern management literature however has mostly ignored spanning activities by focusing on functional specialties such as marketing, finance or product development, while seeing the modern firm as a bundle of unique resources and capabilities (Barney 1991) within an industry (Porter 1980). Few researchers have examined in any empirical way the spanning activities that are inherent within organizations and their resulting impact on organizational performance. This research ultimately attempts to rectify this gap in the literature.

This research thus takes up the challenge of examining boundary spanning as a set of firm capabilities, which should result in improved organizational performance. It does so by examining the traditional product management activities as a proxy for both external and internal spanning activities. As a result, this study first examines the traditional functions and activities associated with product management. Next, the theoretical framework is discussed leading to an overarching research framework. A research question is then proposed and examined through empirical work leading to theoretical and practical implications, followed by conclusions.

1.2. PRODUCT MANAGEMENT WITHIN THE CONTEXT OF THE FIRM

Product management as a management system (not to be confused with product development, project management or product marketing) had its beginnings in the 1930s when Procter and Gamble (P&G) first implemented the role within its divisions as a separate business function (Eckles and Novotny 1984, Lysonski 1985, Wood and Tandon 1994, Sands 1979). This new function was delegated to an individual who was entirely

responsible for the development, production and marketing of a particular product line, integrating all of the functions required for its successful creation and marketing. The success of this integrated “conception through to purchase” system led to the wide adaptation of the P&G model by many companies, large and small until the 1970s when multifunctional teams began to replace individual product managers (Katsanis *et al.* 1996). In this new era, teams became responsible for the entire product life cycle from development through to launch and post-launch activities within the firm. This multifunctional model was implemented to reduce a perceived overemphasis on internal activities leading to product myopia (Wood and Tandon 1994), while improving the firm’s market orientation by getting closer to customers and channel partners. It also had the unintended effect of dispersing product responsibility throughout the organization, while concentrating activities into a number of specialized designations, which came to include such positions as brand manager, category manager and technical product manager (Katsanis 1999). As the PM role continues to evolve from a product specialist to a cross-functional leader (Meserve 1989), the term “product manager” remains as a general descriptor of the position (Gorchels 2005).

Boundary spanning is the subject of a substantial portion of the literature on the role of product managers and is considered a critical element linking information to the organization (Lysonski 1985, Wood and Tandon 1994). Lysonski (1985, p.26) defines boundary spanning as “the interface between the firm and its market environment, as well as between departments in the firm”. As a result, product managers must interact with a multitude of departments and stakeholders in the routine performance of their duties. Internally these include finance, engineering, production, marketing and sales, while external communication occurs with customers, channel partners, specialist (e.g. advertising agencies) (Lysonski and Woodside 1989) market analysts and competitors (Gorchels 2005).

One of the classic boundary activities is the nurturing of shared cross-functional understanding of customer needs. Han, *et al.* (1998) using the marketing orientation framework of Narver and Slater (1990), found that firms with a customer orientation

endeavor to continuously find ways to increase customer value, requiring increased boundary spanning activity. This requires a culture that breaks down the barriers between such functional areas as sales, marketing, engineering and R&D to solve customer problems and create the structure from which to deliver superior products and services, the foundation of many small firm niche strategies (Pelham 1997). This may be a limiting factor however for SMEs who routinely have limited human resources dedicated to these boundary spanning activities.

Wood and Tandon (1994) distinguish between obtaining information and disseminating information, both internally and externally. This process allows the organization to “absorb uncertainty” and facilitates the firm’s adaptation to changing environments. The product manager is the central transmitter of information about the product (a) within the firm and (b) between the company and its environment (Lysonski 1985). Product managers thus perform two functions, one as a filter (i.e., drawing inferences from information and presenting a homogeneous interpretation) and the other as a facilitator (i.e., presenting meaningful information for decision making) (Wood and Tandon 1994). Paradoxically, it seems that product managers spend most of their time and resources on internal boundary spanning activities, even though external activities are deemed to be more critical to the firm’s ability to adapt to turbulent environments (Gorchels 2005).

Thus, at the core of the product management system is the role of boundary spanning. This concept involves the organization, through a distinct management function, conducting the activities required to assimilate external information for processing internally. The product management literature highlights this concept, going so far as to refer to it as an example of boundary spanning theory at work (Lysonski 1985, Lysonski and Woodside 1989). What is likely more accurate is that this boundary spanning concept comes from initial work by Aldrich and Herker (1977) in boundary theory of the firm. This, mezzo-theory, which predates early work in the area of the resource based view of the firm, seemed to garner some academic interest as a way to gain further insight and understanding into the firm and its performance. Others expanded upon Aldrich and Herker (1977) in a tangential way continuing this conceptualization of

spanning activities both within and outside the traditional boundaries of the firm (Day 1994, Tushman and Scanlan 1981a, Tushman and Scanlan 1981b). This concept can be found throughout subsequent management, strategy and marketing theory, but appears to be an integral component of other more dominant theories (e.g. the resource based view - RBV), rather than a theory unto itself.

Thus, although the Product Manager as an entity has lost much of its luster (Wood, Tandon 1994), companies still must rely on a system to coordinate the many activities in creating, developing and marketing their products or services. As a result, the spanning activities traditionally associated with the function of product management must still be performed within firms large or small. This leads to looking at product management as a set of organizational boundary spanning activities, which must be performed by the firm in order to succeed in the marketplace. Product management can thus be thought of as a horizontal plane cutting through the traditional vertical specialties of the organization bringing comprehensive management of product specific problems (Luck 1969). The literature however is for the most part agent-based and dominated by the activities of a product manager and their relationship to the firm, rather than the organizational capability required to create positional advantage. This research addresses this gap by using product management as a proxy for internal and external spanning capabilities of the organization.

Next the theoretical foundation of this research is explicated, by linking the strategy management literature through the resource based view of the firm to the marketing and boundary theories of the organization.

1.3. THEORETICAL FRAMEWORK AND PROPOSITIONS

1.3.1. THE RESOURCE BASED VIEW OF THE FIRM AND PRODUCT MANAGEMENT

The resource based view of the firm (RBV) serves as the overarching theoretical framework for this research. It uses as its foundation the RBV as coined by Wernerfelt (1984), popularized by Barney (1991) and expanded upon by Teece *et al.* (1997). The following is a quick review of the theoretical foundation of the RBV as it relates to this investigation.

Grounded in early economic work by Edith Penrose (1959), the resource based view of the firm (Wernerfelt 1984), addresses how a firm's resources drive performance in a dynamic and competitive environment. Over the past two decades, the RBV of the firm has reached a prominent position among theories in the field of strategy, although debate continues as to its precise nature (Lockett *et al.* 2009). Effectively, the RBV looks at the firm as a set of resources, which can be configured in unique ways to compete in the external marketplace. When these resource bundles are configured in such a way as to make them difficult and costly to imitate, they lead to a competitive advantage, which can be used to exploit opportunities and/or neutralize threats from the external environment (Paladino 2007). The RBV thus sees the firm as a collection of assets that are valuable, rare, inimitable and non-substitutable (a.k.a. VRIN), which when configured properly by management, create strategic value that is not easily replicated (Barney 1991, Wernerfelt 1984, Eisenhardt and Martin 2000). Resources can be defined as physical (e.g. equipment) or intangible such as human expertise and/or organizational capability (e.g. superior product development), which are semi-permanently tied to the firm and can be used to implement value creating strategies (Wernerfelt 1984, Eisenhardt and Martin 2000, Hult *et al.* 2005, Hadjimanolis 2000). Thus, the RBV literature emphasizes that it is the capability to rearrange available resources into unique configurations, not the resources themselves that contribute to competitive advantage, (Eisenhardt and Martin

2000, Borch and Madsen 2007). This ability to transform resource configurations into unique capabilities is the key to establishing competitive advantage.

According to Day (1994) assets are resource endowments, while capabilities are the glue that bind assets together allowing them to be deployed advantageously. This leads to thinking of capabilities as deeply embedded organizational routines, which are difficult to trade or imitate. Over time, firms accumulate integrated combinations of assets and capabilities, leaving management to decide how to best improve upon them to exploit opportunities (Day 1994). This can be a challenge, since key capabilities may be hard to identify, leaving management to determine which capabilities to emphasize. The distinction thus must be made between capabilities and competencies, since both need to be combined with firm specific assets to develop a sustainable position. Competencies are defined as well established organizational routines, while capabilities refer to the mechanisms by which new competencies are developed (Teece *et al.* 1997). Day (1994, pg. 38) define capabilities as “complex bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to coordinate activities and make use of their assets”. He refers to distinctive capabilities rather than competencies, which he defines as key capabilities that each firm needs to outperform competition. These distinct capabilities must make a disproportionate contribution to customer value, be difficult to develop (and thus difficult to imitate) and must be robust in nature.

The RBV is not without its share of critics however. The disparagement includes debate over clear definitions of RBV terminology (Wang and Ahmed 2007, Fahy and Smithee 1999), the mechanism that transforms resource advantage (Eisenhardt and Martin 2000, Wang and Ahmed 2007), the implied simplistic resource-performance link (Ketchen *et al.* 2007, Zahra *et al.* 2006) and the lack of meaningful implications for practitioners (Wang and Ahmed 2007). For instance, most studies simply adopt Barney’s (1991) definition of resources indicating little distinction between resources and capabilities (Wang and Ahmed 2007). Similarly, the RBV does not fully clarify the mechanisms through which resources create competitive advantage, resulting in a perceived lack of validity of RBV as a framework in organizational theory (Eisenhardt and Martin 2000,

Wang and Ahmed 2007, Barney *et al.* 2001, Priem and Butler 2001). All this leads to little practical application of the RBV as a framework for practitioners who want to know how to configure resources in order improve competitive advantage and thus performance.

Some of these criticisms are beginning to be answered through the discourse on the dynamic capabilities of the firm (Eisenhardt and Martin 2000, Teece *et al.* 1997). Dynamic capability has been a response to the critique that theories of firm growth have been too static (Borch and Madsen 2007). In extending the understanding of dynamic capabilities, Eisenhardt (2000) expands upon Teece *et al.* (1997) looking at dynamic capabilities as embedded strategic and organizational processes like product development, strategic decision making and alliances. The dynamic capability approach stresses that resource acquisition, transformation and reconfiguration are central to the establishment of novel value creating strategies (Eisenhardt and Martin 2000, Borch and Madsen 2007, Teece *et al.* 1997). Dynamic capabilities rely on mechanisms that build, acquire, integrate, reconfigure and release both internal and external resources to address rapidly changing environments (Eisenhardt and Martin 2000, Hadjimanolis 2000). Rapidly changing (or dynamic) environments however are not necessarily required for firms to demonstrate dynamic capabilities (Zahra *et al.* 2006). Under dynamically changing environments, firms are particularly challenged to revise their routines or capabilities, but their ability to do so is not due to environmental characteristics, but rather management's ability to quickly reconfigure resources (Zahra *et al.* 2006). Thus, for the purposes of this investigation, Zahra (2006)'s definition of dynamic capability will be used, which emphasizes the latter.

Some authors believe that to resolve these inconsistencies, dynamic capabilities must be separated from substantive capabilities in order to truly understand their antecedents and consequences (Zahra *et al.* 2006). Dynamic capabilities are affected by and transform substantive capabilities and thus the firm's knowledge base (Eisenhardt and Martin 2000, Zahra *et al.* 2006); a relationship that is complex and intricately interwoven. Thus, Zahra (2006) contends that it is the dynamic ability to reconfigure existing substantive resources

that defines the firm's dynamic capabilities. Wang (2007) on the other hand, attempts to clarify the concept of dynamic capabilities by suggesting that the common features (or component factors) can be grouped as adaptive, absorptive and innovative capabilities. Adaptive capability is manifested through strategic flexibility and stresses the firm's ability to quickly adapt to its environment through flexible resources. Absorptive capability assimilates external and internal knowledge and transforms it into firm-embedded knowledge, while innovative capacity links the firm's innovativeness to market opportunities by creating a product-market based competitive advantage (Wang and Ahmed 2007). From either perspective, the research base remains underdeveloped as evidenced by the small number of empirical studies, their narrow scope and/or case based methodologies (Wang and Ahmed 2007, Zahra *et al.* 2006). Dynamic capability remains an important and multifaceted concept that occupies a prominent place in the entrepreneurship and competitive strategy literatures (Zahra *et al.* 2006).

What then is product management's relationship to the RBV? This research posits that product management due to its external and internal boundary spanning nature is a set of absorptive capabilities. It is differentiated from the firm's adaptive and innovative capabilities, since the former relate to the flexibility of resources, while the latter is associated with the market orientation – innovativeness relationship. Several researchers have examined the latter relationship (Atuahene-Gima 1996), some even going so far as to suggest that market orientation when complemented by innovativeness reflect a dynamic capability (Menguc and Seigyoung 2006). However, the position of this research is that product management as a firm capability is the mechanism through which *external* and *internal* knowledge is transformed into firm-embedded action (i.e., absorptive capability), which ultimately should be reflected in positional advantage and subsequent firm performance.

In order to determine product management capability's impact on performance, it must first be isolated from the firm's innovative capabilities, which this research posits is a necessary but not sufficient in explaining firm performance. Thus, to understand the theoretical implications of product management as firm capability, an investigation into

the relationship between the RBV and both market orientation and innovativeness must be assessed.

1.3.2. THE RBV'S RELATIONSHIP TO MARKETING THEORY

According to Fahy and Smithee (1999), based on its economic origins the main contribution of the RBV has been as a theory of competitive advantage. In their view the desired outcome of management's internal efforts should be to establish a sustainable competitive advantage, allowing the firm to earn economic rents with above average returns. The RBV charges the firm's management with making strategic choices by identifying, developing and deploying key resources to establish sustainable competitive advantage leading to superior returns (Fahy and Smithee 1999).

Day (1994), building on his framework of competitive superiority (Day and Wensley 1988) made an initial attempt at integrating the strategic management and marketing theories in his seminal 1994 article. His objective was to rationalize strategic management and marketing theory. His work in retrospect shed light on both the link between the strategic management literature and the RBV and to a lesser extent on the concept of extra and intra organizational spanning. He links the concept of firm capabilities with that of boundary spanning, considering the firm's ability to conduct both outside-in and inside-out activities as a capability of the firm, referring to their integration as boundary spanning capabilities. Market driven firms through their market oriented culture engage in inside-out processing capabilities, such as technology development, cost control and manufacturing, while simultaneously engaging in outside-in capabilities such as market sensing and customer linking (Day 1994). The third capability he defines as spanning processes, which he argues are required to integrate inside-out and outside-in capabilities (Day 1994). These activities include such things as product development, pricing and strategy development (Menguc and Auh 2008), many of which are key attributes of the product management system.

According to Day and Wensley (1988), managers will adopt a customer-focused or competitor centered perspective in an effort to simplify their environment. This simplification process is necessary in order to decide what information is gathered,

screened and interpreted, but comes at the cost of a partial (and perhaps biased) picture of reality (Day and Wensley 1988). What management want to know is which skills and resources exert the most leverage on positional advantages in order to selectively allocate resources (Day and Wensley 1988). There however continues to be a gap in both the strategy and marketing literature on conversion of positional advantage into superior outcomes (Day and Wensley 1988). To address this, Day and Wensley (1988) posit that the drivers of positional advantage are the high leverage skills and resources that create value. These drivers are either cost drivers or drivers of differentiation, with the former largely under the firm's control. The latter corresponds to the sources of advantage residing in the superior skills and resources. When these are mobilized in the right way, they are the underlying reasons why an activity is executed in a unique or superior way (Day and Wensley 1988). These can include such things as linkages within the value chain, such as channel bonding activities.

Building on this foundation, Srivastava *et al.* (2001) provided a bridge between marketing theory and the resource based view, arguing that most marketing theorists including Day (1994) and Kohli and Jaworski (1990) devote little attention to applying the RBV as their frame of reference. They link the RBV and marketing by employing a firm specific (or inside-out) approach, focusing on utilizing resources to establish competitive advantage. These market-specific resources they argue must be leveraged by market-facing processes to create customer value, leading to competitive advantage and ultimately superior performance (Srivastava *et al.* 2001). They distinguish between assets, processes and capabilities as elements of any resource framework, differentiating between relational and intellectual assets. The former they define as intertwined *external* relationships that are not fully owned or controlled by the firm, while the latter relates to *internal* know-how embedded within individuals or processes. Market-based resources, they argue whether relational or informational (Srivastava *et al.* 2001), must be combined through organizational processes to create capabilities such as product innovation management, customer relationship management, or market orientation. These market-based capabilities can be applied to create customer value in ways that the competition cannot imitate, thereby leading to a sustained competitive advantage. This combination

of marketing-specific resources, combine to create customer value via market based processes, which (for the purposes of this study) include product management.

What then is the relationship between the resourced based view and market orientation? The framework of Day and Wensley (1988) posits that market orientation is one of several capabilities (Day 1994) that together give rise to positional advantage, which are rare, valuable and inimitable (Hult and Ketchen 2001). According to Day (1994) the test for the distinctness of capabilities is whether it makes a disproportionate contribution to superior customer value. He feels that customer driven organizations have superior outside-in processes that link the customer, market and channels to the firm. This shift towards the external end aligns processes better than firms whose spanning and inside-out capabilities are internally orientated and poorly guided by market considerations (Day 1994). These organizational capabilities are deeply embedded organizational routines made up of complex bundles of skills. According to Menguc and Auh (2008, pg. 455) firm capability refers to the “ability, competency, or efficacy to deploy, implement, or execute resources for a firm’s advantage”. From their perspective deployment occurs at the point that resources are put into action and it is the degree to which these resources are managed that contributes to marketplace positional advantage and superior firm performance (Day and Wensley 1988). These capabilities are the source of value creation and competitive advantage. Thus, the resource based view considers market orientation an inimitable and unique capability (Day 1994, Hult and Ketchen 2001).

What is apparent is that a system wide attention to markets is a necessary component of both the resource based view and marketing theory and that inside-out (i.e., internal) and outside-in (i.e., external) spanning activities are an integral part of this framework. Thus, in order to fully understand the relationship between the RBV, marketing and product management as firm capability, an investigation into the root of spanning theory is next investigated.

1.3.3. PRODUCT MANAGEMENT AND BOUNDARY SPANNING

There is no fully explicated theory of the role of internal or external boundary spanning of the organization. Many authors have linked components of this concept to theories of

the firm (Lysonski 1985, Day 1994, Tushman and Scanlan 1981a, Aldrich and Herker 1977, Marrone *et al.* 2007, Stock 2006, Singh 1998, Stock and Zacharias 2010), but none have fully defined this concept into a unifying theory. Thus for the purposes of this research, boundary spanning is considered a mezzo-theory, which is integral to other more widely adopted theories, such as the RBV.

The roots of the boundary theory date back to Aldrich and Herker (1977), who at its core acknowledge the existence of both internal and external boundaries of the firm. Taking a sociological perspective, their proposition first involves taking existence of boundaries as given; effectively drawing a boundary around the organization. They define the minimal characteristic of a formal organization as the difference between membership and non-membership in the firm, with some individuals admitted while other excluded. They examine the functions severed by boundary roles, namely information processing and external presentation. External information is received by the firm through boundary roles who act as buffers, moderators or influencers of environmental elements. These boundary roles are thus exposed to overwhelming amounts of information where they must act as filters and facilitators (Aldrich and Herker 1977). However, since all information is not of equal importance, organizations need an information selection, consolidation, delay and/or storage process to protect the firm from overload. This leads to inferred information permeating the boundary between the firm and its environment rather than raw data.

Tushman and Scanlan (1981a) expand upon Aldrich and Herker (1977) by clarifying the nature of information processing at the boundaries of the firm. Their premise is that organizations have evolved over time to create specialized units to deal with relatively homogeneous tasks (such as marketing, R&D), which requires streamlined information flow within the unit, but creates obstacles between the unit and its external area (Tushman and Scanlan 1981a). This occurs through shared semantics, special verbal/non-verbal language and conceptual schemes, which are necessary to permit the economical transaction of information to minimize misunderstandings between actors (Tushman and Scanlan 1981a). Unfortunately, communication across functional boundaries can be prone to bias and loss of information because of the specialized

semantics used by departments (Hsu *et al.* 2007). In order to minimize loss of information, recoding must occur at the boundary between departments, translating one language into that of the other, requiring boundary spanners to be attuned to the contextual information on both sides of the boundary (Tushman and Scanlan 1981a, Hsu *et al.* 2007). Boundary spanners must learn the vocabulary, be able to interpret contextual messages, learn local coding schemes and specialized conceptual frameworks (Tushman and Scanlan 1981a). Only then can information be translated so that it has relevance to the organization; avoiding costly, inefficient and biased information normally associated with widespread communication across firm boundaries (Tushman and Scanlan 1981a). Thus, internal and external communication are necessary but not sufficient for informational boundary spanning (Tushman and Scanlan 1981a).

Similar to the resource based view, boundary theory assumes that the firm depends on its environment for critical resource acquisition and the disposal of outputs (Aldrich and Herker 1977, Stock 2006). These interactions involve engaging in boundary spanning activities such as negotiations, contracting, and cooperation building through roles such as purchasing, sales, marketing, recruitment or any role from the core of the organization to its environment. These roles vary from context to context with some organizations having elaborate sets of boundary roles, while others relatively few. The determining factor may be technology and the environment, where Aldrich and Herker (1977) use technology as a surrogate for innovation activity. In intensive technology organizations customers often become (at least temporarily) part of the organizational structure; what Stock (2006) refers to as inter-organizational boundary spanning. Other aspects include the stability of the environment; the more stable the environment, the less boundary roles are required. In environments of increased complexity and uncertainty higher levels of boundary spanning activity should occur. However, stable environments tend to produce boundary roles governed by rules, whereas unstable environments tend to have more flexible boundary conventions (Marrone *et al.* 2007).

The theory emphasizes the role of individuals in maintaining boundary spanning relationships, playing multiple roles such as information processing and filtering at the interface between the firm and its environment (Stock 2006). What is unequivocal

however is that *internal* and *external* spanning activities permeate the literature and that this mezzo-theoretical boundary spanning concept is embedded within the frameworks of both strategic management and marketing theories. What is also clear is that theories such as the RBV or boundary theory cannot be tested in their current form, but must be tested through constructs which use the precepts of these theoretical frameworks. Thus in order to test theory, the constructs of market orientation and innovativeness must be clarified in order to establish their relationship to boundary spanning. As a result, this research will use previously published measures of market orientation and innovativeness as well as researcher developed scales of internal and external boundary spanning, along with self reported measures of firm performance.

1.3.4. MARKET ORIENTATION

What then is the relationship between the resourced based view and market orientation? Firms that are better at anticipating and responding to changing market requirements and conditions should enjoy long term competitive advantage and superior profitability. These market driven organizations are better at market-sensing and customer-linking capabilities, aligning these activities and processes towards anticipating and responding to changing market requirements ahead of competition (Day 1994). These capabilities are thus the source of value creation and competitive advantage (Menguc and Auh 2008).

In their theoretical implications, Menguc and Auh (2008) suggest the importance of a boundary spanning, market oriented culture that integrates functional divisions. According to Day (1994) the test for the distinctness of capabilities is whether it makes a disproportionate contribution to superior customer value. The framework of Day and Wensley (1988) posits that market orientation is one of several capabilities (Day 1994) that together give rise to positional advantage which are rare, valuable and inimitable (Hult and Ketchen 2001). These organizational capabilities are deeply embedded organizational routines made up of complex bundles of skills. Thus the resource based view considers market orientation an inimitable and unique capability.

As such, market orientation (MO), has been widely accepted as the basis of competition of firms. It is central to the fundamental notion of the marketing concept, upon which the

modern study of marketing is based (Deshpandé and Farley 1998). Much of its wide acceptability in academia stems from the early work of Narver and Slater (1990), Jaworski and Kohli (1993) and Deshpandé *et al.* (1993), who all developed valid measures of the construct by empirically tying it to firm performance. These three conceptualizations of the construct continue to dominate the literature today (Langerak 2003).

According to Narver, Slater (1990) the construct consists of three behavioural components, which include customer orientation, competitor orientation and inter-functional coordination. The first two components involve obtaining, then disseminating external information throughout the firm. Customer orientation for instance involves understanding the entire value chain of the firm's target buyers, while competitor orientation requires understanding the capabilities and strategies of current and potential competitors (Narver and Slater 1990). The latter - inter-functional coordination - relates more to the coordinated efforts of the business to manage human and capital assets to create customer value. Their framework treats these three components with equal weighting, taking a balanced approach to the firm's business strategy (Han *et al.* 1998).

In their investigation into the antecedents and consequences of market orientation, Jaworski and Kohli (1993) take a complementary but slightly different approach. While Narver and Slater (1990), developed empirical support for the hereto assumed market orientation's relationship on performance, they suggest that the MO-performance relationship may be moderated by environmental conditions including market turbulence and competitive intensity (Jaworski and Kohli 1993). They also investigated many antecedents to market orientation, including such things as top management emphasis and interdepartmental conflict (i.e., factors that have an effect upon the organization's MO). Their comprehensive study further solidified market orientation as an important determinant of performance, irrespective of environment conditions. Their construct was formulated around three components, which include intelligence generation, intelligence dissemination and responsiveness. The first two components relate to the integration of horizontal and vertical market intelligence by the organization, while the later measures

the implementation of programs based on the former (Jaworski and Kohli 1993, Kohli *et al.* 1993).

Subsequently Deshpandé *et al.* (1993) sought to expand the understanding of customer orientation relating it to organizational innovation. They focused on customer orientation as an aspect of corporate culture and created the first empirical work to examine innovation and customer orientation (Hurley and Hult 1998). Customer orientation is taken in a slightly different context than their predecessor's definition of market orientation, seeing it as a "set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers and employees" (Deshpandé *et al.* 1993; pg. 27). Under their definition, they perceive customer and market orientation as synonymous (i.e., profitably putting customers first while not excluding other stakeholders) (Langerak 2003). Their 9-point behavioural customer orientation scale was developed based on extensive interviews and review of the literature including Narver and Slater (1990) and Jaworski and Kohli (1990). They concluded that customer oriented innovative firms do perform better. Later Deshpandé and Farley (1998) undertook an assessment of these three most widely used measures of market orientation. What they found was that the scales were interchangeable in practice and that all three scales were reliable and valid. Their work resulted in a 10-item MORTN scale, which they proposed as a more parsimonious aggregate scale for the market orientation construct.

Since then, many studies have examined subsets of the antecedents and consequences of market orientation, as well as the effects of moderators and mediators of the relationship to performance (Kirca *et al.* 2005). For example when the relationship between market orientation and performance is affected, the intensity of the relationship is said to be moderated. The three most substantive moderators between MO and performance include market turbulence, technological turbulence and competitive intensity (Langerak 2003, Kirca *et al.* 2005, Langerak *et al.* 2007). Support within the literature predicts that market responsiveness should occur under market instability (i.e., turbulence and intense competition) (Jaworski and Kohli 1993, Kohli *et al.* 1993), while it should diminish under technological turbulence, as development-driven innovation takes priority over

market-driven innovation. Due to the limited number of moderator effects included in their meta analysis, (Kirca *et al.* 2005) found that there was insufficient evidence to conclude that any of these three moderators had an effect on the MO-performance relationship and thus conclude that the extant literature provides limited support of this. This is corroborated by (Langerak 2003, Langerak *et al.* 2007) who concluded that support for moderating effects is at best inconsistent regardless of the market orientation scale used and that “the moderating influence of market-level factors...are at least equivocal” (Langerak 2003; pg. 459).

Another topic that has received significant attention is the influence of mediating affects - the routes through which (or how) market orientation affects performance. Han, Kim *et al.* (1998) looked at the mediating affect of innovation on performance believing it to be one of the overlooked mechanisms for converting market oriented behaviour into enhanced performance. In their analysis Kirca *et al.* (2005) suggest that these mediators account for a substantial proportion of the total affect of market orientation and that there may be several mediators between market orientation and performance. As an example, innovativeness (defined here as creation of new products to satisfy customer needs) can affect customer loyalty and perceived quality, thus having a resultant effect on performance (Kirca *et al.* 2005).

Market orientation however is inextricably linked to firm innovativeness. A growing body of research continues to emerge between innovation and the marketing-based view within the context of strategy (Lukas and Ferrell 2000). Both marketing theory and the RBV emphasize that firms cannot develop or exploit innovation capabilities without knowledge of market conditions (Atuahene-Gima 2005b), with many studies linking market orientation to the building of firm capabilities (Hurley and Hult 1998, Slater and Narver 1995). This capabilities approach in the strategic marketing literature (Day 1994) offers a useful theoretical basis for the relationship between marketing and innovation orientations, since both are considered core capabilities of market-driven firms (Lukas and Ferrell 2000). Since they are considered highly interrelated (Han *et al.* 1998), a more thorough understanding is necessary to more deeply comprehend the relationship between these synergistic strategic capabilities (Lukas and Ferrell 2000). A firm's

orientation towards innovativeness represents a critical complimentary capability that when bundled with market orientation, enhances firm performance (Menguc and Seigyoung 2006). The next section addresses firm innovativeness and its relationship to the market-based view, namely market orientation.

1.3.5. INNOVATIVENESS

Investigating how internal factors form boundaries of the market orientation – firm performance relationship, Menguc and Seigyoung (2006) believe that complementary internal resources partially explain the achievement of superior competitive advantage. Their study which bundles together innovativeness and market orientation asserts that without continuous innovativeness, barriers to imitation are eroded and/or neutralized. They go so far as to suggest that market orientation when complemented by innovativeness reflects a dynamic capability (Menguc and Seigyoung 2006). In their theoretical implications, they suggest the importance of a boundary spanning, market oriented culture that integrates functional divisions. A firm's orientation towards innovativeness represents a critical complimentary capability that when bundled with market orientation, enhances firm performance (Menguc and Seigyoung 2006).

Innovativeness has been consistently linked to business performance and thus most researchers consider it an essential organizational capability (Han *et al.* 1998, Hurley and Hult 1998, Hult *et al.* 2004). However, the exact relationship between market orientation and innovation continues to remain somewhat fragmented and inconclusive (Lukas and Ferrell 2000). There are several reasons for this. First, numerous labels have been used to describe innovation throughout the literature including such things as product orientation and technological orientation (Grinstein 2008, Garcia and Calantone 2002), new ideas, products, services, processes and quality (Han *et al.* 1998). Second, it is still unclear as to how market orientation affects innovation; whether it enhances (Deshpandé *et al.* 1993) or impedes innovation by the firm (Lukas and Ferrell 2000). For instance, some suggest that firms displaying strong market orientation are more likely to develop innovations that are compatible with current market needs versus future needs (Atuahene-Gima 1996). Third, there is significant debate as to whether market orientation, with its

implied customer closeness, leads to incremental innovations driven by expressed customer needs (Lukas and Ferrell 2000, Narver *et al.* 2004) rather than proactively uncovering latent needs (Narver *et al.* 2004). Depending on the type of innovation desired (incremental versus breakthrough), market orientation may affect innovation positively or negatively depending on the innovation and performance measures used (Atuahene-Gima 1996) and their time frame.

To get a better understanding of innovation in the context of the firm, the distinction must be made between product (or service) innovation and firm innovativeness. Grinstein (2008) in his meta-analysis distinguishes the components of innovation orientation between “innovativeness” and “new product performance”, stating the former has a stronger relationship with market orientation than the latter. The product innovation stream tends to investigate the innovation processes within the firm in an effort to determine the relationship between innovation functions and selected outcomes (Atuahene-Gima 1996, Langerak *et al.* 2007, Lukas and Ferrell 2000). On the other hand, the innovativeness stream tends to favour the cultural aspects of the firm in an effort to quantify innovation activities and relate these to firm performance. Firm innovativeness refers to how the firm exhibits innovation and is defined as “the firm’s capacity to engage in innovation (such as) introducing new processes, products or ideas in the organization” (Hult *et al.* 2004; pg. 429). It is the organizational capacity to innovate, and involves the generation, acceptance and implementation of new ideas, processes, products or services (Calantone *et al.* 2002). Innovativeness conceptualizes the firm’s openness to new ideas and concepts and the degree that their products are new-to-the-world (Hurley and Hult 1998, Deshpandé *et al.* 1993).

Innovativeness has a long association with market orientation dating back to the early work of Deshpandé *et al.* (1993). Hurley and Hult (1998) incorporate innovation into their model seeing both learning and marketing orientations as antecedents to an innovative culture. They break innovation into two components; innovativeness and capacity to innovate. Innovativeness is an aspect of the firm’s culture and reflects its ability to be open to new ideas and ways of doing things (its receptivity to innovation). Capacity to innovate refers to the firm’s ability to successfully adopt and implement new

ideas, products or processes and thus combine the firm's resources to create innovation (its ability to innovate). They found that the innovativeness of the group's culture had a positive and significant effect on innovative capacity. Calantone *et al.* (2002), empirically investigating the link between learning orientation, firm innovation and firm performance found that learning orientation is critical for innovation and that firm innovativeness significantly affects firm performance. They believe that innovation itself is a broad process of learning which enables ideas to be implemented.

Hult *et al.* (2004) in an attempt to test innovativeness under varying external conditions devised a model using the three key antecedents of innovativeness; market, learning and entrepreneurial orientation. They define innovativeness as different from entrepreneurial orientation in that the former does not require market entry (Hult *et al.* 2004). They found that innovativeness' affect on performance under low and high market turbulence was not significant. What they did find however is that market orientation, entrepreneurial orientation and innovativeness were the strongest drivers of performance and conclude that innovativeness at least partially mediates the MO-performance relationship. Their empirical work confirms innovativeness as an important determinant of performance regardless of market turbulence (Hult *et al.* 2004). They also support a strong relationship between entrepreneurial and learning orientations as antecedents to innovativeness. They conclude that "innovativeness in particular appears to be a key mediator in the web of relationships among constructs" (Hult *et al.* 2004; pg. 437).

Deshpandé and Farley (2004) conclude from their research study, spanning a decade and a dozen countries, that market orientation and innovativeness have a consistent positive impact on performance irrespective of industry type. Paladino (2007) investigating the resource-based view of the firm (RBV), relates market orientation's effect on firm innovation and new product success. Her results showed a significant and positive relationship between innovation and both resource and market orientations, substantiating the mediating effect of innovation on the market orientation - performance relationship. This is corroborated by Atuahene-Gima (1996 pg. 100) who indicate that market orientation "has a strong direct impact on the performance of innovations, but its effects on market success is insignificant when mediated by innovation characteristics". He

recommends that future research control for mediating variables, and goes as far as suggesting that the mediating effects of innovation characteristics may involve complete mediation, rather than partial or moderated mediation.

Without the capacity to innovate, firms may study markets but be unable to translate this into practice (Hult *et al.* 2004). Innovativeness is widely considered the route through which market orientation impacts organizational performance. It is a core value creating capability that drives the market orientation – firm performance relationship (Hult *et al.* 2004). There is significant evidence that innovativeness positively mediates the market orientation-firm performance relationship.

Given that still little is known about the drivers of innovativeness and how they influence performance (Hult *et al.* 2004), there is still much to learn about the interaction between innovation orientation and firm performance. This research offers an opportunity to investigate this symbiotic relationship which drives firm performance. Thus,

Proposition 1: Firms with cultures of market orientation and innovativeness perform better than those which merely display cultures of market orientation

1.3.6. PRODUCT MANAGEMENT AS FIRM CAPABILITY

Capabilities are generally considered the most potent source of competitive advantage, however it is unclear whether resources like market orientation should be thought of as outside-in or inside-out capabilities (Fahy and Smithee 1999). As such, such a broad-based taxonomy is likely to be incomplete and potentially misleading with respect to resource advantage (Fahy and Smithee 1999). Thus, similar to marketing within the framework of the organization, product management is a system-wide process with the product (versus the market) as its focal point. Since market centric firms are not comprised of independent elements, but rather a system of interdependent parts (Slater and Narver 1998), product management capability builds upon embedded organizational capabilities, which include market orientation and innovativeness. Lysonski (1985, pg. 38) when referring to boundary spanning states that “it would be useful to know how instrumental boundary spanning is in the innovation process...(product management) may facilitate transfer of new ideas and technology across boundaries, thus stimulating the

innovation process”. Boundary spanning thus has organizational implications for innovation and firms should explicitly encourage teams to view boundary spanning as a strategic priority (Marrone *et al.* 2007).

Boundary spanning is the subject of a substantial portion of the literature on the role of product managers and is considered a critical element linking information to the organization (Lyonski 1985, Wood, and Tandon 1994). The product manager as described by Lyonski (1985) is the central transmitter of information about the product (a) within the firm and (b) between the company and its environment. As a result, product managers must interact with a myriad of departments and organizations in the routine performance of their duties. Internally these include finance, engineering, production, marketing and sales, while external communication occurs with customers, channel partners, specialist (e.g. advertising agencies) (Lyonski and Woodside 1989) market analysts and competitors (Gorchels 2005). Wood and Tandon (1994) distinguish between obtaining information and disseminating information, both internally and externally. These boundary spanning processes allow the organization to “absorb uncertainty” and facilitate the firm’s adaptation to changing environments. Product managers thus perform two functions, one as a filter (i.e. drawing inferences from information and presenting a homogeneous interpretation) and the other as a facilitator (i.e. presenting meaningful information for decision making) (Wood and Tandon 1994).

Product Management as a firm capability should add to the growing body of understanding of the RBV of the firm. For instance, Teece *et al.* (1997) break down essential firm level processes necessary for dynamic capabilities, two of which are relevant to the construct of product management. These include (i) coordination and integration of internal and external activities (Wood and Tandon 1994, Dominguez 1971, Lehmann and Winer 2005, Gatignon and Xuereb 1997, Gray *et al.* 1998) and (ii) reconfiguring resources based on environmental scanning to evaluate markets and competition (Lyonski 1985, Lyonski and Woodside 1989, Quelch *et al.* 1992, Katsanis 2006). Building on Zahra (2006) and Wang (2007), product management capability is believed to be a latent construct, which speaks to the firm’s ability to span internal and external boundaries, while configuring resources to optimize product or service

strategies. This capability involves transformation of substantive capabilities (Zahra *et al.* 2006), while building upon absorptive and innovative capabilities as defined by (Wang and Ahmed 2007). These boundary spanning activities are the subject of a substantial portion of the literature on the role of product managers (Lyonski 1985, Wood and Tandon 1994). Internally it requires a culture that breaks down the barriers between such functional areas as sales, marketing, engineering and R&D (Lyonski and Woodside 1989), while creating the structure from which to deliver superior products and services. Externally, it requires communication with customers, channel partners, specialist (e.g. advertising agencies) (Lyonski and Woodside 1989) market analysts and competitors (Gorchels 2005). Thus, product management truly is a horizontal capability cutting through vertical specialties of the firm. Product management is thus a system-wide approach to providing superior products and services.

1.3.7. EXTERNAL SPANNING ACTIVITIES

Product management involves the interaction with a myriad of stakeholders in the routine performance of boundary spanning activities. Externally this includes interacting with customers, channel partners, specialist (e.g. advertising agencies) (Lyonski and Woodside 1989) market analysts and competitors (Gorchels 2005). This can involve the responsibility for market sensing, establishment of category attractiveness, needs assessment, profitability analysis and forecasting (Dominguez 1971, Lehmann and Winer 2005). In industrial firms, external spanning activities can include communicating with sales reps, distributors, suppliers and buyers. These external activities often involve understanding product buying process complexity and buyer/seller interdependence (Coviello and Brodie 2001). Other tasks include responsibility for customer learning, quick competitive intelligence and directing and implementing marketing strategies (Lyonski and Woodside 1989). In small and medium size enterprises some of these external product management activities consistently distinguished high growth firms (Smallbone *et al.* 1995).

Expanding on Day (1994), several of these external activities include customer linking, market sensing, technology monitoring and channel bonding. This external information

must be filtered and processed at the interface allowing for internal understanding and comprehension by the firm's functional (or multi-functional) skill sets. Thus external spanning activity is filtered by organizational boundary spanners using an outside-in process (Day 1994). Some loss of reliability is inherent in this process, which can result in such things as loss of urgency, prioritization and competitive threat. The optimization of this interaction, which is valuable, rare, inimitable and non-substitutable (a.k.a. VRIN), should create strategic value that is not easily replicated, resulting in a competitive advantage and ultimately superior performance (Barney 1991, Wernerfelt 1984, Eisenhardt and Martin 2000). Thus,

Proposition 2: In the presence of cultures of innovativeness and market orientation, firms which display external product management spanning capabilities, perform better than those who do not

1.3.8. INTERNAL SPANNING ACTIVITIES

Without cross-functional coordination, the innovation process would be ruled by market-centric or technological factions within the organization (Gatignon and Xuereb 1997). One of the classic internal boundary spanning activities is the nurturing of shared cross-functional understanding of customer needs. It requires a culture that breaks down the barriers between such functional areas as sales, marketing, engineering and R&D to solve customer problems and create the structure from which to deliver superior products and services. This cross-functional management approach was implemented by many organizations to reduce a perceived overemphasis on internal activities associated with functional specialization. The ultimate objective of this internal coordination was to improve the firm's market orientation by getting closer to customers and channel partners.

Much has been written about cross-functional integration, specifically within product development teams (Sherman *et al.* 2005, Sherman *et al.* 2005, McDonough III 2000). Some authors go so far as to interpret the different functional backgrounds of team members as boundaries within the team (Stock 2006). Teams are increasingly responsible for cross-functional tasks, bridging organizations and transferring valuable knowledge and know-how (Marrone *et al.* 2007). This cross-functional activity has been

described as a multidimensional process comprised of collaboration and interaction (Kahn 1996) or team centered activities directed towards value creation (Nakata and Im 2010). Several researchers have developed measurement scales, which include such activities as level of contact, information flow and involvement in problem definition (Sherman *et al.* 2005, Souder and Song 1997). From a product management perspective we know that new product performance is stronger when cross-functional coordination is present rather than merely information flow between the functions (Sherman *et al.* 2005, Kahn 1996). However the effectiveness of this process can vary considerably between organizations or units (Sherman *et al.* 2005). Thus “there appears to be a consensus that organizational integration across functional and disciplinary specialties drives superior firm capabilities” (Hsu *et al.* 2007; pg. 1133).

Cross-functional integration has a strong relationship with market orientation dating back to Narver and Slater (1990) who break-out this construct as one of their three factors of market orientation. Under their definition, cross-functional integration refers to the communication and coordination of business functions to enhance customer value. Cross-functional coordination and boundary spanning however differ in that the former mostly stresses *communication* between functions based on information sharing, while the latter measures the *integration* level based on involvement, interpretation of information and participation from concept through to customer relationships. Examples include seeking, interpreting and communicating external information within the team to meet objectives (Marrone *et al.* 2007). This level of involvement speaks to the degree of spanning (or the spanning roles) of the individuals involved in the process. Boundary spanning is critical to team performance, with activities distinct from tacit team processes normally attributed to cross-functional activity such as work coordination, goal setting and management of conflict.

Menguc and Auh (2006) investigating how internal factors form boundaries of the market orientation - firm performance relationship believe that complementary internal resources partially explain the achievement of superior competitive advantage. Organizations without boundary spanning capability tend to have reduced innovation, since they limit their awareness of opportunities, alternative approaches and perspective (Hsu *et al.*

2007). Thus, firms with an orientation towards product or service management should display boundary spanning organizational capabilities, which are tied semi-permanently to the firm and thus are theorized to lead to superior performance. Thus,

Proposition 3: In the presence of cultures of innovativeness and market orientation, firms which display internal product management spanning capabilities, perform better than those who do not

1.3.9. SMEs AND PRODUCT MANAGEMENT CAPABILITY

Why investigate SMEs for product management capability? In order to investigate boundary spanning capability of the firm, organizational-level measures of performance are required. However, product management often occurs at the product line level, rather than the organizational level. Since SMEs are often structured around limited product offerings, they tend to behave more like a product team, thus firm performance and product line performance should be synonymous. Thus SMEs act as a consistent unit of measure for firm-level product management capability.

The challenge in relating product management activities to the capabilities literature is that product management has almost exclusively been described at the agency or project level (Eckles and Novotny 1984, Coviello and Brodie 2001, Cossé and Swan 1983, Gemmill 1972, Cummings *et al.* 1984) Another challenge is that this literature mostly predates not only the RBV, market orientation and innovativeness literatures, but it also frequently consists of quasi-research or anecdotal evidence of this phenomenon. Further complicating this is the mezzo-theoretical foundation of the main concept of this research; that of internal and external boundary spanning activities and their relationship to organizational performance. This provides an academically interesting foundation, especially in light of the emergence of a dominant theory in the management literature; that of the RBV.

With challenges, however come opportunities. The opportunity provided with this research is to revisit older theoretical concepts that have waned under more popular views of the organization and find the bridges between these seemingly disparate views. One way to accomplish this is to consider organizational spanning activities as

capabilities of the firm. Product management activities are specific types of spanning activities that are product line centric. If this is the case, then independent measures of product management capabilities should be measured at the product line (or project) level. The dependent variable in this scenario must be “project specific” and thus would likely follow much of the research in the product development area. Under this framework, the dependent constructs under investigation often include such things as project outcomes, market acceptance measures and/or performance to project or corporate goals (Langerak *et al.* 2007, Langerak 2004). This is possible, perhaps even desired by certain groups of researchers, but the ability to link this type of research to the RBV framework is limited since the ultimate goal should be to link boundary spanning to firm performance. In order to accomplish this, product management spanning capabilities (the independent construct) must be directly related to firm performance (the dependent construct).

This research thus takes an atypical approach by looking at SME performance as the dependent unit of measure. This position allows for product management capability (the independent construct) to be measured at the firm level, allowing the dependent variable to be firm performance. SMEs normally have fewer products and thus at the management level behave more like single product line companies. They therefore operate like project level organizations with a singular business focus, rather than multiple business units within large organizations. This allows for the measurement of firm performance rather than product line performance, thus linking the product management literature to the firm capabilities literature.

1.4. RESEARCH QUESTION AND DIRECTION

What is clear from the literature is that product management, as an organizational spanning capability, has not been investigated in any theoretical or empirical way. The concept of boundary spanning permeates the strategic management and marketing theory literatures, but is considered an integral component of these larger more dominant theories, rather than a theory unto itself. Thus this research seeks to integrate this mezzo-

theoretical construct into the mainstream theory of strategic management, namely the resource based view of the firm.

This research first aims to rectify the gap in the theory that mostly ignores spanning activity internal and external to the firm. It does so by explicating the concept of boundary spanning within the literatures of marketing theory, strategic management, market orientation, innovativeness and product management. All of these literatures substantiate or suggest that boundary spanning activities are a necessary organizational capability that are intricately interwoven with the firm and that this capability is valuable, rare, inimitable and non-substitutable (a.k.a. VRIN), which when configured properly by management, should create strategic value (Barney 1991, Wernerfelt 1984, Eisenhardt and Martin 2000).

Second, by using boundary spanning activities normally associated with product management, these theoretical implications can be tested. This research will assess, through empirical investigation, whether internal and external boundary spanning activities impact firm performance. Product management activities can thus serve as a surrogate for spanning activities, providing a research framework that can be tested. These spanning activities should create competitive advantage, which should subsequently be reflected in firm performance.

Thirdly, this research investigates boundary spanning within the context of well established and tested constructs, namely that of market orientation and firm innovativeness. These constructs are recognized in the literature and are known to act in a symbiotic way, with most researchers considering innovativeness as the route through which market orientation affects firm performance. This research should add to the understanding of this relationship by extracting boundary spanning capabilities from these well known and interwoven concepts.

Lastly, this research proposes to test theory using small to medium size enterprises (SMEs). There are several reasons for this approach. The key difference between SMEs and their larger counterparts lies in their simpler organizational structures (Becherer *et al.*

2003) and ability to more quickly adapt to changing market needs (Hadjimanolis 2000, Keskin 2006). SMEs tend to have a limited range of products, therefore their ability to span internal and external boundaries can both be measured and directly related to firm performance. Since product management is fundamentally the general management of a product or product line, SMEs represent a relatively constant and representative unit of measure to assess product management activity within the firm. This allows theory to be tested against overall firm performance rather than through intermediate steps such as project outcome measures.

Thus, for the purposes of this research the following overarching research question is proposed:

“Does product management capability, defined as external and internal boundary spanning activities, positively affect firm performance?”

1.5. CONCLUSION

The following chapters will first discuss product management within the context of the firm. Chapter two reviews the extant literature on product management, proposes a 32-item measurement instrument and concludes with testing this instrument through analysis of pilot data. Chapter three provides validation of the measurement instrument and establishes internal and external product management constructs and their relationship to firm performance. Chapter four examines a fully saturated product management model, where the firm’s market orientation, innovativeness and product management capabilities are investigated relative to firm performance. Chapter five summarizes the research and provides conclusions and limitations and future avenues of inquiry.

1.6. REFERENCES

- Aldrich, H. and Herker, D., (1977), "Boundary spanning roles and organization structure", *The Academy of Management Review*, Vol.2 No.2, pp. 217-230.
- Atuahene-Gima, K., (2005b), "Resolving the capability—rigidity paradox in new product innovation", *Journal of Marketing*, Vol.69 No.4, pp. 61-83.
- Atuahene-Gima, K., (1996), "Market orientation and innovation", *Journal of Business Research*, Vol.35 No.2, pp. 93-103.

- Barney, J., (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, Vol.17 No.1, pp. 99.
- Barney, J., Wright, M. and Ketchen, D., (2001), "The resource-based view of the firm: Ten years after 1991", *Journal of Management*, Vol.27 No.6, pp. 625.
- Becherer, R.C., Halstead, D. and Haynes, P.J., (2003), "Marketing orientation in SMEs: Effects of the internet environment", *New England Journal of Entrepreneurship*, Vol.6 No.1, pp. 13-22.
- Borch, O. and Madsen, E., (2007), "Dynamic Capabilities facilitating innovative strategies in SMEs", *International Journal of Technoentrepreneurship*, Vol.1 No.1, pp. 109.
- Calantone, R.J., Cavusgil, S. and Zhaob, Y., (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, Vol.31 No.6, pp. 515.
- Cohen, W.M. and Levinthal, D.A., (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol.35 No.1, pp. 128-152.
- Cooper, R.G. and Kleinschmidt, E.J., (1993), "Major New Products: What Distinguishes the Winners in the Chemical Industry?", *Journal of Product Innovation Management*, Vol.10 No.2, pp. 90-111.
- Cossé, T. and Swan, J., (1983), "Strategic marketing planning by product managers—room for improvement?", *The Journal of Marketing*, Vol.47 No.3, pp. 92-103.
- Coviello, N. and Brodie, R., (2001), "Contemporary marketing practices of consumer and business-to-business firms: how different are they", *The Journal of Business Industrial Marketing*, Vol.16 No.5, pp. 382.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L., (1984), "Differences between industrial and consumer product managers", *Industrial Marketing Management*, Vol.13 No.3, pp. 171-180.
- Day, G.S., (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol.58 pp. 37.
- Day, G.S. and Wensley, R., (1988), "Assessing advantage: a framework for diagnosing competitive superiority", *Journal of Marketing*, Vol.52 No.2, pp. 1-20.
- Deshpandé, R. and Farley, J., (1998), "The market orientation construct: Correlations, culture, and comprehensiveness", *Journal of Market-focused Management*, Vol.2 No.3, pp. 237-239.
- Deshpandé, R., Farley, J. and Webster, F., (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol.57 No.1, pp. 23-38.
- Dominguez, G., (1971), *Product management*. American Management Association, New York.

- Eckles, R. and Novotny, T.J., (1984), "Industrial product managers: Authority and responsibility", *Industrial Marketing Management*, Vol.13 No.2, pp. 71-75.
- Eisenhardt, K. and Martin, J., (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol.21 pp. 1105.
- Fahy, J. and Smithee, A., (1999), "Strategic marketing and the resource based view of the firm", *Academy of Marketing Science Review*, Vol.10 No.1, pp. 1-20.
- Garcia, R. and Calantone, R.J., (2002), "A critical look at technological innovation typology and innovativeness terminology: a literature review.", *Journal of Product Innovation Management*, Vol.19 No.2, pp. 110-132.
- Gatignon, H. and Xuereb, J., (1997), "Strategic orientation of the firm and new product performance", *Journal of Marketing Research*, Vol.34 No.1, pp. 77.
- Gemmill, R.G., (1972), "The product manager as an influence agent", *Journal of Marketing*, Vol.36 No.1, pp. 26-30.
- Gorchels, L., (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- Gray, B., Matear, S., Boshoff, C. and Matheson, P., (1998), "Developing a better measure of market orientation", *European Journal of Marketing*, Vol.32 No.9/10, pp. 884-903.
- Griffin, A. and Hauser, J.R., (1993), "The voice of the customer", *Marketing Science*, Vol.12 No.1, pp. 1-27.
- Grinstein, A., (2008), "The relationships between market orientation and alternative strategic orientations", *European Journal of Marketing*, Vol.42 No.1/2, pp. 115.
- Hadjimanolis, A., (2000), "A resource-based view of innovativeness in small firms", *Technology Analysis and Strategic Management*, Vol.12 No.2, pp. 263-281.
- Han, J.K., Kim, N. and Srivastava, R.K., (1998), "Market orientation and organizational performance: Is innovation a missing link?", *The Journal of Marketing*, Vol.62 No.4, pp. 30-45.
- Hsu, S., Wang, Y. and Tzeng, S., (2007), "The source of innovation: Boundary spanner", *Total Quality Management*, Vol.18 No.10, pp. 1133-1145.
- Hult, G., Hurley, R. and Knight, G., (2004), "Innovativeness: Its antecedents and impact on business performance", *Industrial Marketing Management*, Vol.33 No.5, pp. 429.
- Hult, G., Ketchen, D. and Slater, S., (2005), "Market orientation and performance: an integration of disparate approaches", *Strategic Management Journal*, Vol.26 No.12, pp. 1173.
- Hult, T.M. and Ketchen, D.J., (2001), "Does market orientation matter?: A test of the relationship between positional advantage and performance", *Strategic Management Journal*, Vol.22 No.9, pp. 899-906.
- Hurley, R. and Hult, G., (1998), "Innovation, market orientation, and organizational learning: an integration and empirical examination", *The Journal of Marketing*, Vol.62 No.3, pp. 42-54.

- Jaworski, B. and Kohli, A., (1993), "Market orientation: Antecedents and consequences", *The Journal of Marketing*, Vol.57 No.3, pp. 53-70.
- Kahn, K.B., (1996), "Interdepartmental integration: a definition with implications for product development performance", *The Journal of Product Innovation Management*, Vol.13 No.2, pp. 137-151.
- Katsanis, L.P., (2006), "An assessment of professional training for product managers in the pharmaceutical industry", *The Journal of Product Brand Management*, Vol.15 No.5, pp. 324-329.
- Katsanis, L.P., (1999), "Some effects of changes in brand management systems: issues and implications", *International Marketing Review*, Vol.16 No.6, pp. 518-532.
- Katsanis, L.P., Laurin, J.,G. and Pitta, D.A., (1996), "How should product managers' job performance be evaluated in emerging product management systems?", *Journal of Product and Brand Management*, Vol.5 No.6, pp. 5-23.
- Keskin, H., (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs", *European Journal of Innovation Management*, Vol.9 No.4, pp. 396-417.
- Ketchen, D., Hult, G. and Slater, S., (2007), "Toward greater understanding of market orientation and the resource-based view", *Strategic Management Journal*, Vol.28 No.9,.
- Kirca, A., Jayachandran, S. and Bearden, W., (2005), "Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance", *The Journal of Marketing*, Vol.69 No.2, pp. 24-41.
- Kohli, A., Jaworski, B. and Kumar, A., (1993), "MARKOR: A measure of market orientation", *Journal of Marketing Research*, Vol.30 No.4, pp. 467-477.
- Langerak, F., (2004), "The Impact of Market Orientation, Product Advantage, and Launch Proficiency on New Product Performance and Organizational Performance" *The journal of product innovation management*.
- Langerak, F., (2003), "An appraisal of research on the predictive power of market orientation", *European Management Journal*, Vol.21 No.4, pp. 447-464.
- Langerak, F., Hultink, E. and Robben, H., (2007), "The mediating role of new product development in the link between market orientation and organizational performance", *Journal of Strategic Marketing*, Vol.15 No.4, pp. 281-305.
- Lehmann, D. and Winer, R., (2005), *Product Management*. McGraw-Hill/Irwin, Boston.
- Lockett, A., Thompson, S. and Morgenstern, U., (2009), "The development of the resource-based view of the firm: A critical appraisal", *International journal of management reviews*, Vol.11 No.1, pp. 9.
- Luck, D.J., (1969), "Interfaces of a product manager", *Journal of Marketing*, Vol.33 No.4, pp. 32-36.
- Lukas, B. and Ferrell, O., (2000), "The effect of market orientation on product innovation", *Journal of the Academy of Marketing Science*, Vol.28 No.2, pp. 239.

- Lysonski, S., (1985), "A boundary theory investigation of the product manager's role", *The Journal of Marketing*, Vol.49 No.1, pp. 26-40.
- Lysonski, S. and Woodside, A., (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6 No.3, pp. 169-184.
- Marrone, J.A., Tesluk, P.E. and Carson, J.B., (2007), "A multilevel investigation of antecedents and consequences of team member boundary-spanning behavior", *Academy of Management Journal*, Vol.50 No.6, pp. 1423-1439.
- McDonough III, E.F., (2000), "Investigation of factors contributing to the success of cross-functional teams", *Journal of Product Innovation Management*, Vol.17 No.3, pp. 221-235.
- Menguc, B. and Auh, S., (2008), "The asymmetric moderating role of market orientation on the ambidexterity-firm performance relationship for prospectors and defenders", *Industrial Marketing Management*, Vol.37 No.4, pp. 455-470.
- Menguc, B. and Seigyoung, A., (2006), "Creating a Firm-Level Dynamic Capability through Capitalizing on Market Orientation and Innovativeness", *Journal of the Academy of Marketing Science*, Vol.34 No.1, pp. 63-73.
- Meserve, W., (1989), "The Changing Role of Product Management", *Electronic Business*, Vol.15 No.1, pp. 143-145.
- Nakata, C. and Im, S., (2010), "Spurring Cross-Functional Integration for Higher New Product Performance: A Group Effectiveness Perspective", *The Journal of Product Innovation Management*, Vol.27 No.4, pp. 554-571.
- Narver, J. and Slater, S., (1990), "The effect of a market orientation on business profitability", *The Journal of Marketing*, Vol.54 No.4, pp. 20-35.
- Narver, J., Slater, S. and MacLachlan, D., (2004), "Responsive and proactive market orientation and new-product success", *The Journal of Product Innovation Management*, Vol.21 No.5, pp. 334-347.
- Paladino, A., (2007), "Investigating the drivers of innovation and new product success: A comparison of strategic orientations", *The Journal of Product Innovation Management*, Vol.24 No.6, pp. 534.
- Pelham, A., (1997), "Mediating influences on the relationship between market orientation and profitability in small industrial firms", *Journal of Marketing Theory and Practice*, Vol.5 No.3, pp. 55-77.
- Penrose, E., (1959), *The theory of growth of the firm*. Blackwell, Oxford.
- Porter, M., (1980), *Competitive Strategy*. New York Magazine, New York.
- Priem, R.L. and Butler, J.E., (2001), "Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?", *Academy of Management Review*, Vol.26 No.1, pp. 22-40.

- Quelch, J., Farris, P. and Oliver, J., (1992), "The product management audit: design and survey findings", *The Journal of Product and Brand Management*, Vol.1 No.4, pp. 21-34.
- Sands, S., (1979), "Is the product manager obsolete?", *Business Quarterly*, Vol.44 No.3, pp. 30-38.
- Sherman, D.J., Berkowitz, D. and Souder, W.E., (2005), "New product development performance and the interaction of cross-functional integration and knowledge management", *The Journal of Product Innovation Management*, Vol.22 No.5, pp. 399-411.
- Singh, , (1998), "Striking a balance in boundary-spanning positions: An investigation of some unconventional influences of role stressors and job characteristics on job outcomes of salespeople", *Journal of Marketing (pre-1986)*, pp. 69.
- Slater, S.F. and Narver, J.C., (1995), "Market orientation and the learning organization", *Journal of Marketing*, Vol.59 No.3, pp. 63-74.
- Smallbone, D., Leig, R. and North, D., (1995), "The characteristics and strategies of high growth SMEs", *International Journal of Entrepreneurial Behaviour Research*, Vol.1 No.3, pp. 44.
- Souder, W.E. and Song, X.M., (1997), "Contingent product design and marketing strategies influencing new product success and failure in US and Japanese electronics firms", *The Journal of Product Innovation Management*, Vol.14 No.1, pp. 21-34.
- Srivastava, R.K., Fahey, L. and Christensen, K.H., (2001), "The resource-based view and marketing: the role of market-based assets in gaining competitive advantage", *Journal of Management*, Vol.27 No.6, pp. 777-802.
- Stock, R.M., (2006), "Interorganizational teams as boundary spanners between supplier and customer companies", *Academy of Marketing Science Journal*, Vol.34 No.4, pp. 588-599.
- Stock, R.M. and Zacharias, N.A., (2010), "Patterns and performance outcomes of innovation orientation", *Journal of the Academy of Marketing Science*, Vol. Published on-line 28 September 2010 pp. 1-19.
- Teece, D., Pasino, G. and Shuen, A., (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, pp. 509.
- Tushman, M.L. and Scanlan, T.J., (1981a), "Boundary spanning individuals: their role in information transfer and their antecedents", *Academy of Management Journal*, Vol.24 No.2, pp. 289-305.
- Tushman, M.L. and Scanlan, T.J., (1981b), "Characteristics and external orientations of boundary spanning individuals", *Academy of Management Journal*, Vol.24 No.1, pp. 83-97.
- Wang, C. and Ahmed, P., (2007), "Dynamic capabilities: A review and research agenda", *International Journal of Management Reviews*, Vol.9 No.1, pp. 31.

Wernerfelt, B., (1984), "A resource-based view of the firm", *Strategic Management Journal*, pp. 171.

Wood, V. and Tandon, S., (1994), "Key components in product management success (and failure)", *The Journal of Product Brand Management*, Vol.3 No.1, pp. 19-38.

Zahra, S., Sapienza, H. and Davidsson, P., (2006), "Entrepreneurship and dynamic capabilities: a review, model and research agenda", *The Journal of Management Studies*, Vol.43 No.4, pp. 917.

CHAPTER 2 THE IMPACT OF PRODUCT MANAGEMENT ON SME PERFORMANCE: EVIDENCE FROM CANADIAN FIRMS

2.1. ABSTRACT

Purpose – The purpose of this study is to examine the impact of product management as a set of organizational capabilities. This paper investigates product management as a set of boundary spanning capabilities, by empirically relating these to firm performance.

Design/methodology/approach – A measurement instrument is developed and validated based on the extant product management literature. Using a heterogeneous sample of 63 Atlantic Canadian SMEs in the manufacturing and professional/technical services sectors, data is collected to test the survey instrument and establish preliminary construct validity.

Findings – Both firm performance and product management measures demonstrate internal consistency. Several product management sub-constructs demonstrated reliability and in some cases validity, corroborating the product management literature. These included product pricing, sales support and forecasting.

Research limitations/implications – This research builds upon the literature and indicates that a relationship exists between product management capability and firm performance. This leads to the conclusion that product management, as a set of boundary spanning firm capabilities, warrants future research with a larger more homogeneous population. Limitations include geographic bias, treating the population as homogeneous and lack of relationship to established firm orientations.

Practical/implications – This research may have practical significance and managerial implications, based on the relationship between product management capabilities and firm performance. This could lead to an increased understanding of how to allocate scarce resources in order to improve performance.

Originality/value – This research introduces the concept of boundary spanning, product management capabilities and their relationship to firm performance, by providing preliminary validation of a measurement scale for product management capabilities of SMEs.

Keywords – product management, SME, firm performance, firm orientation, boundary spanning, marketing.

Paper type – Research paper

2.2. INTRODUCTION

Product management as an organizational concept has been around for over a century in various forms (Katsanis and Pitta 1995). This boundary spanning capability has a long history of management practice stemming back to the late 19th century, with the organizational structure eventually formalized by Proctor and Gamble in the early 1930's (Sands 1979, Dominguez 1971, Katsanis and Pitta 1995). This system, which treated the product as the focal point of the management structure, became the standard in most large consumer product organizations and many industrial companies in the 1960's (Sands 1979, Buell 1975).

The classic product management model involved the integration of all the functions required for the successful creation, production and marketing of a product line. The strength of this management system was its ability to continuously match internal resources with external requirements, in order to optimize the market performance of individual products or product lines. In the late 1960s, largely driven by the popularization of the study of management (Drucker 1954), firms became more sophisticated in their approach to the enterprise, eventually relegating product management to a number of subordinate, specialized functions within the organization. These came to include such positions as brand manager, category manager (Katsanis and Pitta 1999) and technical product manager.

Given the broad nature of the product management concept and its lack of fit within the conventional divisions of management research, few academics have devoted much attention to this field in the modern era of business research. Recent literature can be predominantly classified into three distinct areas; practitioner focused (Gorchels 2005, Connolly 2002, Berek 1998), job function centered (Katsanis and Pitta 1999, Dawes and Patterson 1988, McDaniel and Gray 1980, Venkatesh and Wilemon 1976, Gorchels 2003) or based on the agent-firm relationship (Cossé and Swan 1983, Gemmill 1972, Giese and Wiesenberger 1982, Murphy and Gorchels 1996, Cummings *et al.* 1989, Lysonski *et al.* 1995, Strieter *et al.* 1999). Although each area has benefitted from various formal empirical studies (Lysonski 1985, Lysonski and Woodside 1989, Katsanis 2006, Dawes

and Patterson 1988, Cummings *et al.* 1989, Tyagi and Sawhney 2010), none have examined product management as a set of organizational capabilities or their relationship to firm performance.

There is however general agreement within the literature on the scope of activities that comprise the aggregate product management responsibilities within the firm and which areas require organizational focus in order to optimize performance. Thus, the premise of this research is that these activities impact firm performance. This study adds to the literature by taking an unconventional approach, whereby it examines product management as a set of boundary spanning organizational capabilities. This product (or service) management capability involves the coordination not only across the traditional boundaries of the firm, but at the interface between the firm and the market (Lyonski 1985). It goes beyond recent research (Tyagi and Sawhney 2010) which investigates the organizational determinants of product management, but stops short of investigating product management as a firm capability.

This paper first reviews the extant literature on product management, providing content validity. Next, a synthesized measurement instrument consisting of 32 questions is proposed, covering the breadth of the product management capabilities of the firm. Research methods are then discussed and empirical results analyzed, based on a pilot study of Atlantic Canadian SMEs in the manufacturing and technical service sectors.

For the purposes of this paper, the term “product” will be used to describe both products and services.

2.3. CONCEPTUAL BACKGROUND – PRODUCT MANAGEMENT

Product management (not to be confused with product development, project management or product marketing) had its formal beginnings in the 1930s when Procter and Gamble (P&G) first implemented the role within its divisions as a separate business function (Eckles and Novotny 1984, Lyonski 1985, Wood and Tandon 1994, Sands 1979). This new function was delegated to an individual who was entirely responsible for the

development, production and marketing of a particular product line, integrating all of the functions required for its successful creation and marketing. This “conception through to purchase” system was adapted widely until the 1970s when multifunctional teams began to take over responsibility for the entire product life cycle, replacing individual product managers (Katsanis *et al.* 1996). While in large organizations this improved the firm’s market orientation, it had the unintended effect of dispersing product responsibility throughout the organization.

Several issues arise within the literature, which need to be explored in order to fully understand the role of product management within the business enterprise. According to Cummings (1984) the product management literature can be divided into two areas; namely the background and characteristics of product managers themselves (Cossé and Swan 1983, Gemmill 1972) and the organizational characteristics of the position. This research will focus mostly on the latter.

Boundary spanning is the subject of a substantial portion of the literature on the role of product managers and is considered a critical element linking information to the organization (Lysonski 1985, Wood and Tandon 1994, Lysonski and Woodside 1989, Katsanis and Pitta 1995, McDaniel and Gray 1980, Lysonski *et al.* 1988). Lysonski (1985 pg.26) defines boundary spanning as “the interface between the firm and its market environment, as well as between departments in the firm”. Product managers thus perform two functions, one as a filter (drawing inferences from information and presenting a homogeneous interpretation) and the other as a facilitator (presenting meaningful information for decision making) (Wood and Tandon 1994). Paradoxically, it seems that product managers spend most of their time and resources on internal boundary spanning activities, even though external activities are deemed to be more critical to the firm’s long term performance (Gorchels 2005, Tyagi and Sawhney 2010).

One of the classic boundary spanning activities is the nurturing of shared cross-functional understanding of customer needs. It requires a culture that breaks down the barriers between such functional areas as sales, marketing, engineering and R&D to solve

customer problems. This can be particularly important for SMEs, since the ability to deliver superior products and services is the foundation of many small firm niche strategies (Pelham 1997). When looking at the growth of SMEs relative to organizational capabilities, Chaston and Mangles (1997) established a relationship between firm growth and internal capabilities. Although several of these capabilities were not directly related to product management (such as investing in productivity assets), several were. What emerged was the critical importance of adopting a balanced approach, believing that emphasis on a single dimension of capability presents a significant risk to the firm, leading to a weakening of future growth (Chaston and Mangles 1997).

Smallbone *et al.* (1995) on the other hand concentrated on strategies and management actions that affect growth. Related to the product management, they identified six variables that reflect the firm's product and market development. These include (i) identifying and responding to new market opportunities, (ii) increasing the breadth of customer base, (iii) broadening or developing a different range of products, (iv) product innovation, (v) improving competitiveness (for example cost reduction, sales efforts, etc.), and (vi) competitive stance (for example cost-leadership versus differentiation). These most consistently distinguished high growth firms from other firms in their study (Smallbone *et al.* 1995).

Although the product manager as an entity has lost much of its luster (Wood and Tandon 1994), companies must still rely on a system to coordinate the many activities in developing and marketing their products or services. Product management thus should be viewed as a holistic, interdependent, boundary spanning system (Katsanis and Pitta 1995) which must still be executed either formally or informally by firms large or small. This leads to looking at product management as a set of boundary spanning organizational capabilities, which must be performed by the firm in order to succeed in the marketplace. Product management can thus be thought of as a horizontal plane cutting through the traditional vertical specialties of the organization, bringing comprehensive management to product specific issues (Luck 1969). This organizational

level approach differs from the agency level approach of most of the product management literature.

Despite the importance of product management within the firm, there is no published scale to measure the strength of this relationship. Thus, for the purpose of this research, a 32-item survey instrument is proposed, based on the extant product management literature.

2.4. MEASUREMENT INSTRUMENT DEVELOPMENT

In support of this study, the extant product management literature was synthesized, resulting in a measurement instrument consisting of 32 questions covering the breadth of the product management activities of the firm. The following outlines each set of questions and their relationship to product management capability.

At the core of product management is the product (or product line) strategy (Sands 1979, Dawes and Patterson 1988). The degree to which firms take a strategic planning orientation (Cossé and Swan 1983, Lysonski *et al.* 1995) should have an impact on firm performance. Product strategy determines which product categories the firm should be competing within and which categories it should relinquish. From an organizational perspective, product strategy has several boundary spanning implications. These include the cross functional responsibility for deciding which products to add and which to phase out (Eckles and Novotny 1984) and the time horizon over which this takes place (for instance, short term versus long term) (Wood and Tandon 1994, Katsanis *et al.* 1996, Katsanis 2006, Berek 1998, Murphy and Gorchels 1996). Companies with the capability of aligning their product strategy with the best alternative for managers (Bristow and Frankwick 1994), should exhibit higher firm performance. Thus, as a measure of how the firm manages its *Product Strategy*, the following two questions (PM1, PM28) were used:

PM1 - We have strong systems for deciding which products and/or service opportunities to pursue or which to phase-out

PM28 - We prefer to take a long-term approach to our product and/or service offerings rather than focusing merely on short term profits

One of the most challenging product management areas for most firms is pricing. Pricing touches all aspects of the firm's business model and is one of its most significant boundary spanning activities within organizations (McDaniel and Gray 1980). Pricing decisions can be affected by the firm's strategic pricing philosophy (for instance cost-based versus value-based pricing) or whether the firm is involved in consumer or industrial sectors (Eckles and Novotny 1984, Cummings *et al.* 1984, Dawes and Patterson 1988, Hise and Kelly 1978). The ability to effectively set pricing involves strong internal and external communication for such issues as setting the base price, trade discounts, quantity discounts, price changes and pricing across channels (Eckles and Novotny 1984, Lehmann and Winer 2005, Cummings *et al.* 1984, Gorchels 2003). Good pricing policy should also be driven by good pricing analysis. Thus as a measure of how the firm manages its *Product Pricing*, the following two questions (PM2, PM3) were used:

PM2 - Our product and/or service pricing (for instance, base price, discount schedules, etc.) are clearly communicated to all stakeholders

PM3 - Our product and/or service pricing (for instance, base price, discount schedules, etc.) is determined via careful analysis and feedback from the marketplace

Another significant product management activity is support for sales management. Classic product managers work with sales management to set strategies and achieve plans (Katsanis and Pitta 1999), while in SMEs these sales related activities tend to have a greater influence in marketing activities (Walsh 2009). These can include contact with sales representatives, distributors, suppliers, and buyers (Sands 1979, Coviello and Brodie 2001) and should lead to the establishment of sales objectives (Eckles and Novotny 1984), sales force quotas, sales force incentives, and allocation of sales resources. When looking specifically at the boundary spanning tasks of the firm, the product management activities tend to be generally related to sales support and motivation (Gorchels 2005, Katsanis and Pitta 1999) and can include such activities as product training, creating presentations/demos, technical/field support and special sales

force requests (Katsanis *et al.* 1996, Cummings *et al.* 1984, Cummings *et al.* 1984, Gorchels 2003, Murphy and Gorchels 1996, Petrini and Grub 1973). Good sales management also has an after sale emphasis (Gray *et al.* 1998), which includes scrutinizing the effectiveness of marketing programs and/or performing win/loss analysis (Cossé and Swan 1983). Thus as a measure of how the firm manages its *Product Sales Support*, the following three questions (PM 4, PM5, PM6) were used:

PM4 - Our sales force or sales partners are consistently kept informed about our product and/or service strategy

PM5 - Our sales force or sales partners consistently receive up to date product and/or service support (for example, training, technical support, demonstrations and presentations)

PM6 - Sales data is consistently analyzed and measured against marketing programs and forecasts

Another well documented role of product management within the organization is business analysis. This involves preparing the business case for new products or services, assessing the financial risk for new products, and evaluating the desirability of new products in the marketplace (Cummings *et al.* 1984, Murphy and Gorchels 1996). Thus, how the firm manages its product related *Business Assessment* is measured using the following question (PM9):

PM9 - Our product and/or service plans are supported by strong business case analysis

Closely related to the business case is product management's involvement in budgeting (Cummings *et al.* 1984, Lysonski *et al.* 1995, Hise and Kelly 1978, Clewett and Stasch 1975). This can range from assisting with the administration of marketing budgets, reviewing budget mix, launch budgets (Ledwith and O'Dwyer 2008) and/or monitoring expenditures. In looking specifically at the product management activities associated with budgets, it is important to separate general marketing budgets from specific product or service related activities. For instance, is budgeting related generally to brand building or allocated at the product level? Also, tangentially related to budgeting is the product's overall profitability (Luck 1969, Buell 1975, Gorchels 2003, Hise and Kelly

1978). Thus, as a measure of how the firm manages its Product Budgeting, the following two questions (PM10, PM11) are proposed:

PM10 - Our marketing budget is allocated by product and/or service category rather than generally at the firm level

PM11 - We consistently monitor the profitability of each of our products and/or services

Much of the product management literature highlights the monitoring of the product or service offering in an effort to understand the product-market dynamics. This can involve the monitoring of marketing programs to determine if they conform with and support the product plan. Other activities include measuring such activities as advertising effectiveness or monitoring commercial performance. The ultimate objective is to provide feedback to the product/service process within the firm for corrective action (Quelch *et al.* 1992, Clewett and Stasch 1975). Also, reviewing available product-related data such as product recalls, technical service data and customer satisfaction is critical to this process (Gray *et al.* 1998, Murphy and Gorchels 1996). Thus, how a firm conducts its *Internal Monitoring* activities is determined using the following three questions (PM30, PM13, PM12):

PM30 - We consistently monitor the effectiveness of our promotional activities by product and/or service category

PM13 - Our firm consistently reviews customer comments, recalls and technical service data as input for future decisions about our products and/or services

PM12 - We consistently monitor our customer service by product and/or service category

Monitoring the external environment including the regulatory or legal environment is another key product management activity (Katsanis and Pitta 1999). It involves keeping abreast of potential conflicts between product strategies/programs and regional, national, or international laws/regulations. Issues such as the legitimacy of advertising claims, product labeling, or product recalls would be typical problems that require attention from the firm. The product management capability of the organization takes the role of resolving these issues, making recommendations and implementing action (Quelch *et al.* 1992, Katsanis 2006, Cummings *et al.* 1984, Murphy and Gorchels 1996). The following

(PM26) is proposed to measure the *External Monitoring* activities of the firm's environment:

PM26 - We consistently monitor our external environment (for example social, political, economic, regulatory) in order to avoid surprises with respect to our products or services

One of the key external boundary spanning activities of the product management function is the integration of customer research into the product design and development process. This includes matching the needs of the market with the firm's technological opportunities and capabilities. This is the firm's boundary spanning capability of integrating customer learning into the product development process and typically involves primary research such as customer visits (Luck 1969, Calantone *et al.* 2002, Quelch *et al.* 1992, Gorchels 2003). As such, the following statement (PM14) is proposed to measure the *Customer Integration* aspect of product management:

PM14 - Our firm consistently seeks customer input into the design of our products and/or services

From a slightly different perspective, market research and competitive intelligence are mostly driven by secondary research. This external boundary spanning function is how firms search the industry for new ideas, trends, or phenomena (Katsanis 1999). It involves keeping abreast of competitors, (Lyonski 1985), and monitoring product diffusion (Calantone *et al.* 2002) in an effort to anticipate changes in evolving market dynamics. It also involves the firm's capability to integrate competitive intelligence into new and existing products in the marketplace (Quelch *et al.* 1992, Katsanis 2006, Lyonski *et al.* 1988). As such, the following three questions (PM15, PM16, PM17) are used to measure *Competitive Intelligence*:

PM15 - Competitive research and analysis drives our product and/or service planning

PM16 - We consistently scan our industry for new ideas, trends or phenomena to improve our product and/or service offerings

PM17 - We systematically benchmark our product and/or service offerings against industry leaders

Goal and objective setting is paramount to the success of the product management capability of the firm. This involves tradeoffs between internal resource allocation and the functional priorities of the organization. For instance, setting priorities to establish product marketing objectives must be balanced with other functions such as cost accounting or research and development (Quelch *et al.* 1992, Katsanis 2006, Clewett and Stasch 1975). Thus, having the systems to establish product, project, and personnel objectives should positively affect firm performance. As such, the following question (PM18) is proposed to measure *Priority Setting*:

PM18 - We have well established systems for setting priorities for our product or service offerings

Forecasting has traditionally had a strong association with product management (Sands 1979, Dominguez 1971, Dawes and Patterson 1988, McDaniel and Gray 1980, Hise and Kelly 1978). Forecasting involves a significant amount of boundary spanning activity inside and outside of the firm. It encompasses developing volume and revenue forecasts based on overall industry sales and market share by segment or product line (Quelch *et al.* 1992, Katsanis 2006, Cossé and Swan 1983, Murphy and Gorchels 1996). The *Forecasting* function is thus measured as follows (PM19, PM20):

PM19 - We have well established systems for forecasting and monitoring product and/or service unit sales

PM20 - We have well established systems to monitor our market share by product and/or service category

Communication and Coordination has a long history and is the subject of a significant amount of the product management literature (Sands 1979, Dominguez 1971, Berek 1998, Dawes and Patterson 1988, McDaniel and Gray 1980). Communication has a broad scope and is difficult to fully specify. However, it can be broadly broken down into internal and external communications (Lysonski 1985, Wood and Tandon 1994). Examples of internal product management communication involve such things as conducting team meetings, fostering communication amongst diverse team members, and initiating and maintaining appropriate linkages between the product and project teams

and/or functional departments. Examples of external product management communication can include contact with sales reps, distributors, suppliers, and buyers. These boundary spanning processes require (a) obtaining information and (b) disseminating information, with the firm's product management capability providing a "filtering and facilitation" role (Wood and Tandon 1994; pg.24). Fundamentally, communication involves transmitting information about the product/services from the external environment into the firm and vice versa. (Katsanis 2006, Lysonski *et al.* 1988, Bristow and Frankwick 1994, Clewett and Stasch 1975). The *Communication and Coordination* function is measured as follows (PM7, PM8, PM32):

PM7 - We foster communication about our products and/or services within our firm in order to generate product improvement ideas

PM8 - We foster communication about our products and/or services outside of our firm in order to generate product improvement ideas

PM32 - External information is consistently communicated to internal staff for decision making about our products and/or services

Product development and R&D have a well documented link with product management (Dawes and Patterson 1988). The issues revolve around active participation within the firm to ensure that research and development plans are aligned with product strategy. The firm's product management capability needs to foster relationships within the organization throughout all of the stages of the development process (Luck 1969). Tasks such as writing product requirements, determining product/service modifications, participating in the product conceptualization process, or assisting with product specifications are common themes (Eckles and Novotny 1984, Cummings *et al.* 1984, Murphy and Gorchels 1996). Early involvement and integration of both marketing and R&D in the product development process should result in improved firm performance (Calantone *et al.* 2002, Gorchels 2003, Bristow and Frankwick 1994). As such, the following three statements (PM21, PM22, PM23) are used to measure the boundary spanning roles of *Marketing & Technical Integration*:

PM21 - We have well established systems for involving business, marketing and technical personnel in our product and/or service efforts

PM22 - Marketing and technical personnel communicate effectively and work harmoniously when it comes to product and/or service issues

PM23 - Marketing and technical personnel participate equally in developing new product and/or service concepts

Test marketing and pretest marketing (for example, simulated test market) are effective ways for firms to weed out questionable products prior to their market introduction/launch (Calantone *et al.* 2002, Ledwith and O'Dwyer 2008). This product management function is boundary spanning in nature, since it involves aspects of concept testing, product design, use/usability testing, as well as the more traditional aspects of test marketing (for example, brand name and price testing) (Quelch *et al.* 1992, Cummings *et al.* 1984, Murphy and Gorchels 1996). More formal research studies also tend to prove or disprove internal notions about the product or service (Murphy and Gorchels 1996). As such, the following three statements (PM24, PM31, PM27) are used to measure the *Market Testing* component of the product management function:

PM24 - We consistently use pre-test marketing (for example simulated market tests) to establish the viability of new products and/or services

PM31 - Our products and services are mainly driven by market requests

PM27 - We frequently conduct formal research studies to prove or disprove our pre-conceived notions about our products and/or services

Influence over the promotion and advertising decision making process (Sands 1979, Buell 1975, Berek 1998) is another classic function of product management. This can include many aspects of the promotional mix, including trade (and consumer) promotion, trade shows/exhibits, advertising copy, media selection, creating material for external audiences (for instance, blog/newsletter), and advertising. Consumer and industrial firms differ in how this responsibility is divided, with the former more highly involved in promotion and advertising than the latter (Eckles and Novotny 1984, Quelch *et al.* 1992, Gemmill 1972, Cummings *et al.* 1984, Murphy and Gorchels 1996). The following question is thus used to measure the *Cross-Functional Promotion* and advertising approach of product management:

PM25 - We take a team approach to the design and development of our promotional materials

Lastly, value creation is another output of the product management capability of the firm. In the industrial product management model, technical depth and superiority tend to be more prevalent than in consumer product management systems (Eckles and Novotny 1984, Calantone *et al.* 2002, Cummings *et al.* 1984, Murphy and Gorchels 1996). As such, the following question is designed to measure whether the firm's product management functions are *Technically Driven*:

PM29 Our products and/or services are mainly driven by technical superiority

It should be noted that no reverse questions were used in the development of the product management questionnaire. Given the exploratory nature of this research and the breadth of coverage of the product management capabilities of the firm, this was considered a reasonable assumption. Future work may use both positive and negative statements as a means of limiting halo bias.

Lastly, for the purposes of this research, performance will be measured using subjective, global performance measures as outlined in Appendix A. These performance measures have been used extensively in SME research, driven largely by the reluctance of owner/managers to provide objective financial performance information (Wolff and Pett 2006).

2.4.1. SME ORIENTATION AND PRODUCT MANAGEMENT

Small and Medium size enterprises (SMEs) provide a unique challenge in the arena of product management. Despite the importance placed upon the marketing concept within SMEs, our understanding of the precise marketing activities and competencies that relate to firm performance remain under-developed (Walsh 2009). Although the Procter and Gamble model of product management has made its way into some SMEs (Katsanis *et al.* 1996), this formal model may not be very well suited for smaller organizations (Dawes and Patterson 1988). Small and medium size firms are often driven by daily emergencies

and concerns, while frequently lacking of adequate competitive analysis and new product development infrastructure (Woodcock *et al.* 2000).

One of the key criticisms of many small and medium-sized businesses is that they fail to translate solid research and development findings into successful innovations (O'Regan *et al.* 2006). Research has shown that many small and medium-sized businesses have strong technology related product management practices, such as product development, testing and analysis. However, the majority of SMEs lack the ability to properly perform many of the marketing related product management functions (for example, market research and market testing). These factors help differentiate successful and unsuccessful products (Huang *et al.* 2002) and, along with customer intelligence, are positively related to improved innovation and profitability within small and medium-sized enterprises (Verhees and Meulenber 2004). To overcome these innovation deficiencies, successful small and medium-sized firms must devote a sufficient amount of energy to developing new products for current customers, broadening their markets/customer base and properly managing their current product portfolios (Smallbone *et al.* 1995).

Research on innovation has also shown that improvements in SME's innovation practices can be achieved by beginning to structure organizations to allow for improved cross-functional and cross-disciplinary communication (Vermeulen 2005). SMEs that are able to implement and nurture effective new product development practices appear to have a richer resource base and better formal or informal product management strategies (Karlsson and Olsson 1998). Huang *et al.*'s (2002) research also provides some insight, since they conclude that certain product management practices such as market research, analysis, product creation and commercialization are the most crucial activities for product success. However, these activities are also believed to be the group of business activities that required the most improvement and attention (Karlsson and Olsson 1998).

This evidence lends credibility and supports the importance of proper and effective product management capabilities within small and medium-sized enterprises.

2.5. METHODOLOGY

The focus of this research is on Small and Medium-sized Enterprises (SMEs) engaged in manufacturing and professional/technical services. The geographic criteria used for this study was the Atlantic Provinces of Canada (Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland & Labrador).

Small to medium size enterprises were defined as (a) having less than 250 employees or (b) less than CDN\$ 50M in revenue, and (c) are stand alone enterprises (that is, not subsidiaries of larger entities). Sole proprietorships and micro-businesses were deselected by restricting this study to those businesses with greater than five employees. The study used key informants who were senior managers of SMEs (for example, General Managers through to CEOs).

The SME population was identified through the use of two prominent databases (a) Industry Canada's Canadian Company Capabilities (CCC) database and (b) the Canadian Business Directory (CBD). The former is a self-reported, on-line database where Canadian companies freely share their corporate information, including senior company contact information, firm size, limited performance data, and key market information. The latter (CBD) is a commercially available database.

Records were also restricted to those businesses whose named contacts or officers were listed and telephone numbers were included. In total, 629 records in the CCC database and 628 in the CBD database were used. A number of methods were employed to detect common business records between the two datasets. Near matches were examined on an individual basis, such as subtle differences in spelling between the two systems. In total, 138 business records were positively matched between the two data sources, giving us a complete working data set of N=1119 distinct businesses.

The method of data collection was a self-reported on-line survey answered by senior company key informants between June and September 2008. Participants were asked to provide their opinion on a number of generic statements related to product management

and firm performance. Firm performance was measured using a 9-item instrument (see Appendix A). Questions were randomized using a 7-point Likert scale from “disagree completely” to “agree completely” based on how their firm has performed in the past, not how it hoped to perform in the future. Lastly, participants were asked briefly about their experience in their industry and their company, and what best described their management position within their organization.

This method resulted in 63 good responses (n=63). This translated into a response rate of 5.63% of the total population (N=1119). Of these responses 50 (79.4%) were primarily producers of goods, while 13 (20.6%) were primarily suppliers of services. Of the respondents 44 (69.8%) were Chief Officers, Presidents or Vice Presidents of their companies. When senior managers were included this increased to 59 (93.7%) of respondents. Of these respondents 35 (55.61%) had greater than 15 years experience in their industry, while 28 (44.4%) had greater than 20 years experience.

2.6. ANALYSIS AND RESULTS

Given the small sample size collected (N=1119, n=63) and for the purpose of exploratory research, linear regression was used to establish the relationships between product management (PM) measures and firm performance (PERF).

Results are as follow:

Table 2.6-1 - Reliability Statistics

Construct Description	Items	# of items	CR	R ²	Sig.
Firm Performance	PERFORM1-6, A-B Export	9	.840	n/a	n/a
Product Management Orientation (ALL)	PM1-32	32	.949	n.s.	n.s.
Product Strategy	PM1,PM28	2	n.s	n.s.	n.s.
Product Pricing	PM2,PM3	2	.690	.046	*
Product Sales Support	PM4,PM5,PM6	3	.701	.139	**
Sales Support	PM5	1	n/a	.185	***
Product Budgeting	PM10,PM11	2	n.s	n.s.	n.s.
Internal Product Monitoring	PM12,PM13, PM30	3	.649	n.s.	n.s.
External Product Monitoring	PM26	1	n/a	.034	***
Monitoring	PM12,PM13, PM26,PM30	3	.734	n.s.	n.s.
Competitive Intelligence	PM15,PM16, PM17	3	.715	n.s.	n.s.
Forecasting	PM19,PM20	2	.684	.045	*
Communication and Coordination	PM7,PM8,PM32	3	.709	n.s.	n.s.
Marketing & Technical Integration	PM21,PM22, PM23	3	.616	n.s.	n.s.
Market testing	PM24,PM27, PM31	3	n.s	n.s.	n.s.
Technical Superiority	PM29	1	n/a	.113	***
Non-significant PMO †	PM_NON_SIG	23	.927	n.s.	n.s.

† Remaining PM measures with a non-significant relationships with firm performance (using the criteria $p < 0.10$)
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

First, looking at the dependant variables for firm performance (9-items), we see that the Cronbach's Alpha of 0.84 indicates a good correlation between the measures of firm performance, well above the 0.70 "rule of thumb" standard (Hair *et al.* 2006, Nunnally and Bernstein 1994). This establishes that the performance measure is reliable and can be used as a dependable aggregate measure of firm performance. Thus, this 9-item performance measurement is used as the aggregate dependant variable for linear regression analysis.

The 32-item product management measures produce a Cronbach's Alpha of 0.949. This indicates that the proposed product management measures are internally consistent even given the large amount of variables considered. It is likely that this broad-based measurement encompasses several sub-constructs. However, without a larger sample

size, principal component analysis (PCA) could not be performed. This suggests that the PM construct measurement merits further testing with a larger sample.

Next, significant sub-constructs of product management are reviewed. For the purposes of this analysis, only measures considered significant at a $p < 0.10$ level and with a Cronbach's Alpha greater than 0.60 (Nunnally and Bernstein 1994) will be discussed (see Table 2.6-1). Relaxing the constraint to $p < 0.10$ is considered a reasonable assumption. Although this may increase the chance of a type I error, the objective is to avoid a type II error for exploratory research (McBurney and White 2003, Simon 08/12/2005).

The 2-item *Product Pricing* construct (PM1, PM28) shows both an acceptable Cronbach's Alpha (0.690), with an R^2 of 0.046 and significance of $p < 0.10$ when regressed against the aggregate performance measure. This supports the product management literature, which suggests that firms with a product management focus consider pricing to be a key product management capability.

Sales Support (PM4, PM5, PM6) also shows a good Cronbach's Alpha (0.701) and significance of $p < 0.10$, when regressed against performance. It also shows a strong R^2 of 0.139, indicating that this 3-item measure has a strong relationship with firm performance in this sample. Of particular interest is one individual Sales Support measure (PM5), which shows a very strong R^2 of 0.185 with a significant correlation ($p < 0.001$). However, given the small sample size and the pilot nature of this investigation, the aggregate measure of Product Sales Support is considered a more reliable measure. This indicates that support to the sales function appears to be strongly related to SME firm performance.

Internal Product Monitoring (PM12, PM13, PM30) shows an acceptable Cronbach's Alpha (0.649), but this set of measures does not show a correlation with performance. Interestingly, *External Product Monitoring* (PM26), shows a direct relationship with firm performance, with an R^2 of 0.034 and a very strong correlation with performance ($p < 0.001$). If *Product Monitoring* is measured using both internal and external measures,

the Cronbach's Alpha improves to 0.734, indicating an improvement in the consistency of the measurement, though it fails to improve in significance when regressed against performance in this sample. Thus, *Product Monitoring* as a construct seems to gain consistency by including both internal and external dimensions indicating that it merits further investigation in future research. This may shed some light on some of the unexplained interaction between internal and external marketing activities of the firm (Walsh 2009).

Forecasting (PM19, PM20) is well established in the product management literature as a specific capability. In our sample, it displays a reasonable Cronbach's Alpha (0.684) with an R^2 of 0.045 and significance of $p < 0.10$, when regressed against performance. This 2-item measure indicates that strong forecasting capability may have a role in the prediction of firm performance.

One final single measure of Product management, namely *Technical Superiority* displays significance in this sample with an R^2 of 0.113, which indicates a strong relationship with performance ($p < 0.001$). This suggests that the high performing firms in this sample seemed to differentiate themselves via technical superiority. This measure could be an artifact of this particular sample, since it is weighted towards industrial firms within a specific geographic area. This should be investigated in more detail in the future research.

Several other constructs showed internal consistency with Cronbach's Alpha > 0.60 , including *Competitive Intelligence*, *Communication and Coordination* and *Marketing & Technical Integration*. This indicates that even with this small under-determined dataset, these constructs showed consistency and merit further investigation in a larger study.

2.7. DISCUSSION

This preliminary study and analysis has highlighted several issues for consideration. These can be summarized into three general areas, namely (a) specific product

management measures or constructs, (b) selection of the target population and (c) relationship to other firm orientations.

First, specific measurement questions and sub-constructs were found to be important and significant at the exploratory level. These include *Product Pricing*, *Sales Support*, *Forecasting* and *Technical Superiority*. These constructs are all well established in the product management literature and this study indicates that these measures show both internal consistency and correlation with firm performance. This is academically important since it indicates that a relationship exists between the product management literature and firm performance. However, this relationship is provisional, given the nature of this exploratory research, which included relaxing traditional statistical constraints to $p < 0.10$, considered reasonable for investigative research (McBurney and White 2003). Yet, this does encourage the use of these measures in a larger, more broadly based study.

Also of note are several other sub-constructs which showed internal consistency, but not a correlation with firm performance. These included *Monitoring* (both internal and external), *Competitive Intelligence*, *Communication & Coordination* and *Marketing & Technical Integration*. These constructs are also well established in the product management literature and their internal consistency suggests that these constructs deserve further investigation in future studies.

A few individual product management measures showed strong significance ($p < 0.001$) on their own and included (i) Sales Support (PM5) and (ii) Technical Superiority (PM29). Although PM5 showed both strength and significance, it appears to be related to a higher level construct of *Product Sales Support* (PM4-5-6), which is supported by the extant literature. On the other hand, PM29 shows both strength and significance, which could be a reflection of the chosen population (or sample) in this pilot dataset. A larger study where controls for industry can be employed may shed more light on this relationship. Secondly, selection of the target population is important for future studies. This pilot study was conducted using a convenience sample (SMEs in Atlantic Canada) in

conjunction with a policy research study for a Canadian Federal Agency (the Atlantic Canada Opportunities Agency — ACOA). This introduced geographic and selection bias (for instance, combining manufacturing & service firms), along with a small sample size (n=63 out of N=1119). For future studies, a larger and more homogeneous population is recommended. For instance, using a broader population of Canadian SMEs, where larger population sizes are available, should reduce or eliminate these biases. This should also allow for the use of controls, such as industry sectors.

Lastly, future studies could benefit from measuring product management in conjunction with other well established firm orientations. For instance, the market orientation (MO) construct (Narver and Slater 1990, Jaworski and Kohli 1993, Kohli *et al.* 1993, Deshpandé *et al.* 1993) has a long and rich body of academic research, which may add credibility and understanding to the proposed measures of product management. In a similar vein, firm-level innovativeness (Paladino 2007, Calantone *et al.* 2002, Gatignon and Xuereb 1997) could add to the understanding of product management, since it spans the firm's traditional boundaries between marketing and innovation orientations.

2.8. LIMITATIONS AND FUTURE RESEARCH

This study is exploratory in nature and its primary aim is to assist with hypothesis generation rather than providing hypothesis testing. The author is careful in drawing conclusions based on this limited study; thus, the analysis provided is considered preliminary in nature. It offers good initial evidence of construct validity of the proposed product management concept, while providing insight into the boundary spanning capabilities of the firm and their relationship to performance. It does this by examining a small, under-determined set of Atlantic SMEs in both the manufacturing and professional/technical services sectors.

There are several limitations to this study, which will need to be resolved in future research. These include the geographic nature of the population, the small sample size, the treatment of two distinct industry types as homogeneous, the broad nature of the product management construct and the lack of relationship to other well researched firm

orientations. All of these issues should be addressed in future research. Although this study does not distinguish between firms involved in manufacturing and professional/technical services, the literature does make this distinction (Eckles and Novotny 1984, Coviello and Brodie 2001, Cummings *et al.* 1984, Walsh 2009). This might well have an effect on how firms configure their resources and capabilities.

The broad nature of the product management construct can also be resolved through its relationship with other firm orientations such as market, entrepreneurial and/or innovation orientations. From the literature review it is clear that product management is a broad construct, which encompasses several factors, one or more of which are likely measuring alternate constructs of firm orientation. This issue should be clarified in future research using a larger population and more sophisticated methods of analysis, including factor analysis and/or structural equation modeling. This could allow for the examination of correlations between individual measurements and possible latent factors.

Regardless, it is clear from this preliminary analysis that the proposed measures of product management provide some insight into firm performance. Further research will be needed using a larger sample of SMEs to establish which measures of product management provide predictability of firm performance.

2.9. CONCLUSIONS

Product management is a wide-ranging construct whose activities span the internal functional areas of the firm and its external environment. According to Olson *et al.* (2005), researchers should concentrate more on understanding the antecedents of marketing practices in order to predict performance and inter-functional coordination. How work is coordinated within the firm, should receive more attention in the area of strategy implementation research. Although organizations large and small perform many of these boundary spanning activities, those that excel at their integration should perform better and more easily adapt to their competitive environments. While firms still rely on either formal or informal product management practices, researchers have not tested this in any empirical way.

This pilot study has many purposes. First, it offers preliminary validation of product management measures related to firm performance with a small sample of regional SMEs. This is academically important since the literature has thus far not linked the construct of product management to firm performance. Second, the study's focus on SMEs adds to the product management literature, which is either focused on large enterprises or does not distinguish between small, medium, or large organizations. Third, it establishes the reliability of self-reported objective measures of performance with a small sample of SMEs. This is important as it establishes these objective performance measures as valid for future research in this area. Fourth, the study seeks to establish the degree to which boundary spanning product management practices are currently employed by SMEs. Lastly, this research may have practical significance and managerial implications if product management practices can be related to firm performance. This could potentially lead to an increased understanding of how to allocate resources in order to improve firm performance. It may also have policy implications related to programs which support commercialization and innovation within SMEs.

In conclusion, this small sample of 63 Atlantic Canadian SMEs provides support for much of the literature on product management. The researcher developed product management measures did highlight some correlation with constructs from the literature and firm performance. These included *Product Pricing*, *Sales Support*, *Forecasting and Technical Superiority*. It also highlighted several constructs that merit further investigation, including *Monitoring*, *Competitive Intelligence*, *Communication & Coordination* and *Marketing & Technical Integration*. This is encouraging and highlights the need for a larger, more broadly based study.

Most significantly, this research introduces the concept of boundary spanning, product management capabilities and their relationship to firm performance.

2.10. APPENDIX A – PERFORMANCE MEASUREMENT

PERFORM1	Our sales growth was _____ when compared to our competitors
PERFORM2	Our profit growth was _____ when compared to our competitors
PERFORM3	Our employment growth was _____ when compared to our competitors
PERFORM4	The overall performance of the business met expectations last year
PERFORM5	The overall performance of the business last year exceeded that of our major competitors
PERFORM6	Top management was very satisfied with the overall performance of the business last year
PERFORMA	Over the past 3 years, our sales growth on average:
PERFORMB	Generally, our firm's ability to raise capital is:
Export	Exports represent (percentage of revenue) (0%, 25%, 50%, 75%, 100%)

2.11. REFERENCES

- Berek, R.L. (1998), "Product management a work in progress", *Pharmaceutical Executive*, Vol.18, No.3, pp. 60.
- Bristow, D. and Frankwick, G. (1994), "Product managers' influence tactics in marketing strategy development and implementation", *Journal of Strategic Marketing*, Vol.2, No.3, pp. 211.
- Buell, V. (1975), "The changing role of the product manager in consumer goods companies", *The Journal of Marketing*, Vol.39, No.3, pp. 3.
- Calantone, R.J., Cavusgil, S. and Zhaob, Y. (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, Vol.31, No.6, pp. 515.
- Chaston, I. and Mangles, T. (1997), "Core capabilities as predictors of growth potential in small manufacturing firms", *Journal of Small Business Management*, Vol.35,, No.1, pp 47.
- Clewett, R. and Stasch, S. (1975), "Shifting role of the product manager", *Harvard Business Review*, Vol.53,, No.1, pp. 65.
- Connolly, K.E. (2002), "Growth by design: Product management keeps financial giant nimble", *Design Management Journal*, Vol.13,, No.2, pp. 24.
- Cossé, T. and Swan, J. (1983), "Strategic marketing planning by product managers—room for improvement?", *The Journal of Marketing*, Vol.47,, No.3, pp. 92.
- Coviello, N. and Brodie, R. (2001), "Contemporary marketing practices of consumer and business-to-business firms: how different are they", *The Journal of Business Industrial Marketing*, Vol.16, No.5, pp. 382.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L. (1989), "Examining product managers' job satisfaction and performance using selected organizational behavior variables", *Journal of the Academy of Marketing Science*, Vol.17, No.2, pp. 147.

- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L. (1984), "Differences between industrial and consumer product managers", *Industrial Marketing Management*, Vol.13, No.3, pp. 171.
- Dawes, P.L. and Patterson, P.G. (1988), "The performance of industrial and consumer product managers", *Industrial Marketing Management*, Vol.17, No.1, pp. 73.
- Deshpandé, R., Farley, J. and Webster, F. (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol.57, No.1, pp. 23.
- Dominguez, G. (1971), *Product management*. American Management Association, New York.
- Drucker, P.F. (1954), *The Practice of Management*. Harper & Row, New York.
- Eckles, R. and Novotny, T.J. (1984), "Industrial product managers: authority and responsibility", *Industrial Marketing Management*, Vol.12, No. 2, pp. 71.
- Gatignon, H. and Xuereb, J. (1997), "Strategic orientation of the firm and new product performance", *Journal of Marketing Research*, Vol.34, No.1, pp. 77.
- Gemmill, R.G. (1972), "The product manager as an influence agent", *Journal of Marketing*, Vol.36, No.1, pp. 26.
- Giese, T.,D. and Wiesenberger, T.,M. (1982), "Product manager in perspective", *Journal of Business Research*, Vol.10, No.3, pp. 267.
- Gorchels, L. (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- Gorchels, L. (2003), "Transitioning from Engineering to product management", *Engineering Management Journal*, Vol.15, No.4, pp. 40.
- Gray, B., Matear, S., Boshoff, C. and Matheson, P. (1998), "Developing a better measure of market orientation", *European Journal of Marketing*, Vol.32, No.9, pp. 884.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*. Pearson Prentice Hall, Upper Saddle River, New Jersey.
- Hise, R.,T. and Kelly, P.,J. (1978), "Product management on trial", *Journal of Marketing*, Vol.42, No.4, pp. 28.
- Huang, X., Soutar, G.N. and Brown, A. (2002), "New product development processes in small and medium-sized enterprises: Some Australian evidence", *Journal of Small Business Management*, Vol.40, No.1, pp. 27.
- Jaworski, B. and Kohli, A. (1993), "Market orientation: Antecedents and consequences", *The Journal of Marketing*, Vol.57, No.3, pp. 53.
- Karlsson, C. and Olsson, O. (1998), "Product innovation in small and large enterprises", *Small Business Economics*, Vol.10, No.1, pp. 31.
- Katsanis, L.P. (2006), "An assessment of professional training for product managers in the pharmaceutical industry", *The Journal of Product Brand Management*, Vol.15, No.5, pp. 324.

- Katsanis, L.P. (1999), "Some effects of changes in brand management systems: issues and implications", *International Marketing Review*, Vol.16, No.6, pp. 518.
- Katsanis, L.P., Laurin, J.,G. and Pitta, D.A. (1996), "How should product managers' job performance be evaluated in emerging product management systems?", *Journal of Product and Brand Management*, Vol.5, No.6, pp. 5.
- Katsanis, L.P. and Pitta, D.A. (1999), "The performance appraisal process of pharmaceutical product managers in Canada: an empirical study", *Journal of Product and Brand Management*, Vol.8, No.6, pp. 463.
- Katsanis, L.P. and Pitta, D.A. (1995), "Punctuated equilibrium and the evolution of the product manager", *The Journal of Product and Brand Management*, Vol.4, No.3, pp. 49.
- Kohli, A., Jaworski, B. and Kumar, A. (1993), "MARKOR: A measure of market orientation", *Journal of Marketing Research*, Vol.30, No.4, pp. 467.
- Ledwith, A. and O'Dwyer, M. (2008), "Product launch, product advantage and market orientation in SMEs", *Journal of Small Business and Enterprise Development*, Vol.15, No.1, pp. 96.
- Lehmann, D. and Winer, R. (2005), *Product Management*. McGraw-Hill/Irwin, Boston.
- Luck, D.J. (1969), "Interfaces of a product manager", *Journal of Marketing*, Vol.33, No.4, pp. 32.
- Lysonski, S. (1985), "A boundary theory investigation of the product manager's role", *The Journal of Marketing*, Vol.49, No.1, pp. 26.
- Lysonski, S., Levas, M. and Lavenka, N. (1995), "Environmental uncertainty and organizational structure: A product management perspective", *The Journal of Product and Brand Management*, Vol.4, No.3, pp. 7.
- Lysonski, S., Singer, A. and Wilemon, D. (1988), "Coping with environmental uncertainty and boundary spanning in the product manager's role", *The Journal of Services Marketing*, Vol.2, No.4, pp. 15.
- Lysonski, S. and Woodside, A. (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6, No.3, pp. 169.
- McBurney, D.H. and White, T.L. (2003), *Research Methods*. Wadsworth Publishing, USA.
- McDaniel, C. and Gray, D.,A. (1980), "The product manager", *California Management Review*, Vol.23, No.1, pp. 87.
- Murphy, W. and Gorchels, L. (1996), "How to improve product management effectiveness", *Industrial Marketing Management*, Vol.25, No.1, pp. 47.
- Narver, J. and Slater, S. (1990), "The effect of a market orientation on business profitability", *The Journal of Marketing*, Vol.54, No.4, pp. 20.
- Nunnally, J. and Bernstein, I. (1994), *Psychometric Theory*. McGraw Hill Inc., New York.

- Olson, E., Slater, S. and Hult, G. (2005), "The Performance implications of fit among business strategy, marketing organization structure, and strategic behavior", *The Journal of Marketing*, Vol.69, No.3, pp. 49.
- O'Regan, N., Ghobadian, A. and Sims, M. (2006), "Fast tracking innovation in manufacturing SMEs", *Technovation*, Vol.26, No.2, pp. 251.
- Paladino, A. (2007), "Investigating the drivers of innovation and new product success: A comparison of strategic orientations", *The Journal of Product Innovation Management*, Vol.24, No.6, pp. 534.
- Pelham, A. (1997), "Mediating influences on the relationship between market orientation and profitability in small industrial firms", *Journal of Marketing Theory and Practice*, Vol.5, No.3, pp. 55.
- Petrini, B.F. and Grub, P.G. (1973), "Product management in high technology defense industrial marketing", *California Management Review*, Vol.15 pp. 138.
- Quelch, J., Farris, P. and Oliver, J. (1992), "The product management audit: design and survey findings", *The Journal of Product and Brand Management*, Vol.1, No.4, pp. 21.
- Sands, S. (1979), "Is the product manager obsolete?", *Business Quarterly*, Vol.44, No.3, pp. 30.
- Simon, S. (2005), "Stats: what is an alpha level?", available at <http://www.childrens-mercy.org/stats/definitions/alpha.htm> (accessed 08 August 2010).
- Smallbone, D., Leig, R. and North, D. (1995), "The characteristics and strategies of high growth SMEs", *International Journal of Entrepreneurial Behaviour Research*, Vol.1, No.3, pp. 44.
- Strieter, J., Gupta, A.K., Raj, S.P. and Wilemon, D. (1999), "Product management and the marketing of financial services", *International Journal of Bank Marketing*, Vol.342 pp. 354.
- Tyagi, R.K. and Sawhney, S.S. (2010), "High-performance product management: The impact of structure, process, competencies, and role definition", *The Journal of Product Innovation Management*, Vol.27, No.1, pp. 83.
- Venkatesh, A. and Wilemon, D.L. (1976), "Interpersonal influence in product management", *Journal of Marketing*, Vol.40, No.4, pp. 33.
- Verhees, F. and Meulenber, M. (2004), "Market orientation, innovativeness, product innovation, and performance in small firms", *Journal of Small Business Management*, Vol.42, No.2, pp. 134.
- Vermeulen, P. (2005), "Uncovering barriers to complex incremental product innovation in small and medium-sized financial services firms", *Journal of Small Business Management*, Vol.43, No.4, pp. 432.
- Walsh, M.F. (2009), "The role of the marketing function in small and medium sized enterprises", *Journal of Small Business and Enterprise Development*, Vol.16, No.4, pp. 569.

- Wolff, J.A. and Pett, T.L. (2006), "Small-firm performance: Modeling the role of product and process improvements", *Journal of Small Business Management*, Vol.44, No.2, pp. 268.
- Wood, V. and Tandon, S. (1994), "Key components in product management success (and failure)", *The Journal of Product Brand Management*, Vol.3, No.1, pp. 19.
- Woodcock, D., Mosey, S. and Wood, T. (2000), "New product development in British SMEs", *European Journal of Innovation Management*, Vol.3, No.4, pp. 212.

CHAPTER 3 THE IMPACT OF PRODUCT MANAGEMENT ON SME FIRM PERFORMANCE

3.1. ABSTRACT

Purpose

This study addresses a gap in the literature by investigating product management as a set of firm-level activities, distinct from the behaviours embedded within the market orientation construct. This research establishes product management as a set of organizational activities, which lie at the boundary between the traditional functions of the firm.

Design/methodology/approach

A model is proposed and tested using a heterogeneous sample of 316 Canadian SMEs, where product management mediates the relationship between market orientation and firm performance. Data are analyzed using a partial least squares (PLS), structural equations model (SEM).

Findings

Product management behaviour is found to fully mediate the market orientation – firm performance relationship. Two of the three product management constructs, namely channel analysis/support and market/technical integration account for this effect.

Research limitations/implications

These results support the product management literature, which infers that more emphasis on external boundary spanning activities and internal coordination should positively influence firm performance. Limitations include the heterogeneous nature of the sample, time frame and geographic bias.

Practical implications

Managerial implications include the establishment of an empirical link between product management practices and how firms ultimately perform. This could assist practitioners in enhancing coordination activities between the marketing and technological factions within the organization.

Originality/value

This research establishes product management as a set of activities, which lie at the boundary between the traditional functions of the firm. These activities are found to fully

mediate the market orientation – firm performance relationship and introduce the hereto untested link between product management and firm performance.

Keywords: Product management; market orientation; firm performance; boundary spanning; Partial least squares

Classification: Research paper

3.2. INTRODUCTION

Product management as a concept has a long association with the marketing function of the firm, dating back to its auspicious beginnings in the 1930's when Procter & Gamble successfully deployed this management model throughout their organization (Eckles and Novotny 1984, Lysonski 1985, Wood and Tandon 1994, Wichman 1986). This system, which treated the product as the focal point of the management structure, delegated the entire responsibility for the development, production and marketing of a product to an individual, known as a product manager. Under this system, the firm concentrated the responsibility for the integration of all functions required for the successful creation though to marketing of a product or product line. Although this system was never widely adopted by small and medium size enterprises, successful SMEs appear to display both formal and informal product management strategies (Karlsson and Olsson 1998), likely due to their simpler organizational structures (Becherer *et al.* 2003) and general flexibility (Pelham 1999, Pelham 2000). These behaviours have been cited as some of the most crucial activities for product success in SMEs (Karlsson and Olsson 1998).

Why then has product management research mostly evaded the focus of academic research? This may be due to this business philosophy pre-dating most academic management research, which came into favour in the 1960's just as the classic product management model was being replaced with more sophisticated views of the firm. This modern era of management favoured the specialization of functions rather than the integration of functional of activities. Thus, the boundary spanning activities traditionally associated with the product management role became generally relegated to the informal systems within the organization. Although many of the classic product management behaviours are still embedded within organizations, product management as a research area has mostly languished. With notable exceptions (Katsanis 2006, Tyagi and Sawhney 2010), most recent publications can best be categorized as practitioner-based (e.g. Gorchels 2005).

Interestingly, market orientation, long believed to be a driver and predictor of firm performance, remained largely subjective in nature until the influential work of Narver

and Slater (1990), Jaworski and Kohli (1993) and Despondé, Farley and Webster (1993) in the early 1990's. This research was successful at quantifying the marketing related culture and behaviour of the firm and established the basis for a deep and rich body of academic research which continues to develop. Although several researchers have since investigated market orientation's affect on performance within SMEs (Pelham 1997, Gray *et al.* 1998, Verhees and Meulenbergh 2004), its impact is somewhat inconclusive and remains largely context dependant (Greenley 1995, Pelham and Wilson 1995, Becherer *et al.* 2001, Frishammar 2009). However, none have investigated the boundary spanning behaviour traditionally associated with the product management activities of the firm.

Although product management has lost much of its lustre (Wood and Tandon 1994), it continues to have its roots entrenched within the marketing function of the firm. This relationship however has not been investigated in any empirical way, likely due to the implicit and largely false assumption that these behaviours are embedded within the well established market orientation construct. However, unlike market orientation, product management establishes how the firm's behaviours transcend the traditional functional boundaries of the firm and how external information is captured and processed by the organization. Market orientation's more simplistic relationship does not take into account the complex set of internal and external interactions that a firm must manage in order to optimize performance. This research thus addresses a gap in the literature by taking the position that these firm-level product management activities lie at the boundary between the traditional functions of the firm. Product management can thus be examined as a set of firm behaviours, which enhance or mediate the market orientation – firm performance relationship. This research thus addresses some of the issues at the marketing/entrepreneurship interface (MEI) (Miles and Darroch 2008, Ulsay and Teach 2008, Hansen and Eggers 2010), namely product positioning, channel management and cross functional coordination within SMEs. This study thus seeks to answer what types of product management behaviours SMEs display and how they affect performance.

The literature on product management and market orientation is reviewed in the context of small and medium size enterprises. A model is then proposed and hypotheses

developed linking product management with market orientation and firm performance. The model is then tested using a heterogeneous sample of 316 Canadian small and medium sized firms in the manufacturing sector. Results are discussed in the context of both academic and managerial implications.

3.3. LITERATURE REVIEW

3.3.1. PRODUCT MANAGEMENT LITERATURE

The extant product management literature largely focuses on the functions of the individual or set of individuals who are responsible for stewardship of the product within the organization. These individuals, known as product managers, span the traditional boundaries of their firm and act as integrators and disseminators of information used for product related decision making. Not to be confused with product development or project management, classic product management has a long association with the marketing function of the firm, dating back to the 1930's when Procter and Gamble (P&G) first implemented the role within its divisions as a separate business function (Eckles and Novotny 1984, Lysonski 1985, Wood and Tandon 1994, Wichman 1986). However, unlike the firm's marketing function, product management involves the integration of all the functions required for the successful creation through to market adoption of a product, including complete accountability for its creation, production and marketing. This integrated "conception through to purchase" system became widely adopted by industry until the 1970s when multifunctional teams began to replace individual product managers (Katsanis *et al.* 1996). Product management within the enterprise thus became relegated to sub-ordinate specialty positions, which came to include segment manager, product line manager or product business manager (Tyagi and Sawhney 2010, Wichman 1986)

Topics within the product management literature range from differences between industrial and consumer sectors (Eckles and Novotny 1984, Lysonski and Woodside 1989, Quelch *et al.* 1992, Gemmill 1972, Cummings *et al.* 1984, Dawes and Patterson 1988, Murphy and Gorchels 1996, Kelly and Hise 1979), the nature of the responsibilities

of the function (Dominguez 1971, Lehmann and Winer 2005, Clewett and Stasch 1975) and the agent-firm relationship (Lysonski 1985, Cossé and Swan 1983, Giese and Wiesenberger 1982, Murphy and Gorchels 1996, Cummings *et al.* 1989, Strieter *et al.* 1999, Lysonski *et al.* 1988). Another key theme focuses on the interdependencies between the traditional functions of the firm and their relationship to the external environment. These boundary spanning activities are considered a critical element linking information to the organization (Lysonski 1985, Wood and Tandon 1994, Lysonski and Woodside 1989, Lysonski *et al.* 1988). Lysonski (1985 pg. 26) defines these boundary spanning activities as “the interface between the firm and its market environment, as well as between departments in the firm”. Internally these include the interdependencies between finance, engineering, production, marketing and sales, while externally include communication with customers, channel partners, specialist (e.g. advertising agencies) (Lysonski and Woodside 1989), market analysts and competitors (Gorchels 2005). Many authors believe that there has been an overemphasis on internal activities and that a reorientation towards external boundary spanning activities are needed to improve product management effectiveness (Katsanis and Pitta 1995, Murphy and Gorchels 1996, Tyagi and Sawhney 2010). For a more detailed description of the product management within the firm, see Roach (2011a).

3.3.2. PRODUCT MANAGEMENT AND SMES

Even though the classic Procter and Gamble model has been adopted by various SMEs (Katsanis *et al.* 1996), this model is not considered well suited for smaller organizations who tend to be driven by daily concerns (Woodcock *et al.* 2000). Thus, small and medium size enterprises (SMEs) provide both a challenge and opportunity in the area of product management research. From one perspective, SMEs tend to lack new product development infrastructure, conduct insufficient competitive analysis (Woodcock *et al.* 2000) and commonly fail to translate solid research and development into successful innovations (O'Regan *et al.* 2006). They tend to display strong technology related product management practices (Huang *et al.* 2002) but generally lack the ability to integrate many of the marketing related product management tasks such as market research, market testing and customer intelligence. This integration tends to differentiate

successful innovations, products and firms (Huang *et al.* 2002, Verhees and Meulenber 2004).

On the other hand, successful SMEs appear to have both formal and informal product management strategies (Karlsson and Olsson 1998). Huang *et al.* (2002) suggest that the interrelationship of certain product management practices such as market research, analysis, product creation and commercialization were cited as the most crucial activities for product success. However, these product management activities were also described by the respondents as being the group of business activities that required the most improvement and attention. Gray *et al.* (1998) also found that one of the overarching product management capabilities – inter-functional coordination - had the strongest relationship with ROI suggesting that “sharing of market and product information...and use of coordinated planning methods may be linked with improved business efficiency and profitability” (Gray *et al.* 1998; pg. 899). They go on to comment on the effectiveness of many of the product management activities including encouragement of customer input, after-sales emphasis, regular evaluation of value creation and systematic measurement of customer satisfaction.

The key difference between SMEs and their larger counterparts may lie in their simpler organizational structures (Becherer *et al.* 2003) and ability to more quickly adapt to changing market needs (Hadjimanolis 2000, Keskin 2006). Their general flexibility and adaptability should facilitate greater boundary spanning activity between established functional areas. Since product management is essentially the general management of a product or product line and SMEs tend to have a limited range of products, they present a relatively constant and representative unit of measure to assess product management activity within the firm.

3.3.3. PRODUCT MANAGEMENT, MARKET ORIENTATION AND PERFORMANCE

Recent research suggests that one of the most important factors in creating high-performance product management organizations was the reduction of organizational boundaries and the elimination of traditional functional silos (Tyagi and Sawhney 2010).

From this perspective, product management can be thought of as a holistic, interdependent, boundary spanning system (Katsanis and Pitta 1995) which cuts through the traditional vertical specialties of the organization (Luck 1969). This leads to looking at product management as a set of boundary spanning firm-level activities, which must be present in order to thrive in the marketplace.

What then is the relationship between market orientation and product management? Market orientation (MO) entails the implementation of the marketing concept, by enhancing the firm's ability to anticipate, react and capitalize on environmental changes (Shoham *et al.* 2005). Narver and Slater (1990) approach market orientation from a cultural perspective, while Jaworski and Kohli (1993) take a complimentary behavioural approach focusing on stakeholder relationships. Deshpandé *et al.* (1993) on the other hand initially defined market orientation as a "set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers and employees" (Deshpandé *et al.* 1993; pg. 27). Later Deshpandé and Farley (1998) undertook an assessment of these three measurement scales finding that they were interchangeable in practice, reliable and valid, recommending a more parsimonious 10-item MORTN scale.

Product management activities are however distinct from market orientation, since they focus on the firm's ability to extract external information and efficiently process it internally. For instance, a market oriented firm may be culturally predisposed to customer centric activities, but may lack the capability to extract relevant customer needs and behaviour information from the marketplace. Even if the firm has this capability, it may lack the systems and processes to integrate this information into the organization for product-related decision making. Thus market oriented firms who lack product management abilities may be very efficient at external information gathering (for instance in SMEs the founder is often the primary information gatherer), but unable to adequately transfer this knowledge to the organization. The organization on the other hand, may be functionally very strong, but lack the ability to share and disseminate pertinent information across functional boundaries for use in decision making. Thus product management goes beyond mere market oriented culture and behaviour by

enhancing (or mediating) its impact on firm performance. This study thus posits that boundary spanning product management behaviour may be one of the missing mediation effects between market orientation and performance as highlighted in several meta studies (Kirca *et al.* 2005, Shoham *et al.* 2005)

Clearly many authors believe that superior product management capabilities should positively affect firm performance. Yet, despite this general agreement, the relationship between firm performance and product management behaviour has hereto not been tested in any empirical way. Thus, for the purposes of model development, a 33-item survey instrument is adapted based on an investigation of the extant product management literature (Roach 2011a) as outlined in Appendix A. For the purposes of model development, Deshpandé and Farley's (1998) 10-item MORTN scale) was used as a measurement of the market orientation construct. These concepts are then integrated into a structural model, where product management mediates the relationship between market orientation and firm performance.

3.4. METHODOLOGY AND MODEL DEVELOPMENT

3.4.1. SAMPLE AND DATA COLLECTION

The model was tested on a sample of Canadian small and medium-sized enterprises (SMEs) engaged in manufacturing. For the purpose of this study, SMEs were defined as (a) having greater than 5 and less than 250 employees and (b) being stand alone enterprises (i.e. not subsidiaries of larger entities). The method of data collection was a self-reported on-line survey answered by senior managers of SMEs in May 2009. Questions were randomized using a 7-point Likert scale from “disagree completely” to “agree completely”.

This method resulted in a 367 good responses of which 51 were deselected, since they self reported that they had less than 5 employees or greater than 250 employees. This left a useable sample of n=316, which translates into a response rate of 3.81% of the total population (N=8295). Of the respondents 219 (69.3%) were Chief Officers, Presidents or

Vice Presidents of their companies. When senior managers were included this increased to 294 (93.1%) of respondents. Of these respondents 228 (72.2%) had greater than 15 years experience in their industry, while 183 (58.0%) had greater than 20 years experience.

3.4.2. CONSTRUCT DEVELOPMENT

The product management instrument was pre-tested on a sample of Atlantic Canadian SMEs (n=63) (Roach 2011a). Minor modifications to the structure and wording of the questions resulted, which included the addition of one new question (PM33) (see Appendix A). The results suggested that the instrument was understandable, captured the product management concepts of interest and were interpreted correctly, thus establishing face validity.

On the basis of this pre-test and to further establish content validity, all of the product management (PM) and market orientation (MO) indicators were analyzed using principal component analysis (PCA). This confirmed the uni-dimensionality of the construct's indicators prior to further evaluation of reliability and validity (Götz *et al.* 2010). Since product management is generally considered a marketing construct, both product management (33 - PM indicators) and market orientation (10 - MO indicators) were factor analyzed together. This approach was used to determine whether there was substantial correlation between both sets of measurement indicators.

Using a Varimax rotation, a visual analysis of the scree plot indicated a five factor reduction as described in table 3.4.2. Product management indicators are denoted as "PM" while market orientation indicators are denoted as "MORes".

Table 3.4.2 - Results of Principal Component Analysis after Varimax rotation

Factor 1		Factor 2		Factor 3		Factor 4		Factor 5	
PM11	.653	MORes5	.723	MORes4	.662	PM27	.632	PM23	.738
PM6	.631	MORes9	.686	MORes1	.643	PM17	.628	PM22	.698
PM19	.610	MORes6	.673	MORes8	.638	PM20	.592	PM21	.524
PM3	.565	PM12	.592	MORes7	.599	PM26	.520	-	-
PM5	.483	MORes10	.578	-	-	PM24	.506	-	-
PM1	.463	-	-	-	-	PM9	.483	-	-
-	-	-	-	-	-	PM15	.471	-	-

This analysis revealed three “clean” product management (PM) factors (1, 4 and 5) and two market orientation factors (2 and 3). This indicates that market orientation and product management are measuring separate constructs, providing content validity. The market orientation MORTN scale generally maps to factors 2 and 3 with only two indicators (MORes2 & 3) not loading, while one product management indicator (PM12) loaded on the first market orientation factor. The latter is likely mimicking the market orientation indicator MORes6 and is thus considered redundant. However, given that most market orientation indicators loaded on the second and third factor, and to preserve this well established parsimonious scale (Deshpandé and Farley 1998), market orientation was initially maintained as a distinct single factor construct represented by all (and only) its well established indicator variables.

In a similar fashion, three distinct product management factors (1, 4 and 5) were identified. These are interpreted as follows:

PM Factor 1 – Channel Analysis/Support

PM Factor 2 – Product Positioning

PM Factor 3 – Marketing/Technical Integration

These three factors are further developed in the following section. For a detailed list of the product management indicators, see Appendix A.

3.5. MODEL SPECIFICATION AND HYPOTHESIS DEVELOPMENT

The proposed product management model examines the relationship between market orientation (MO), product management (PM) and firm performance (PERF). The generic product management model is presented below in figure 3.5-1, with each latent construct represented as a reflective construct. In this model, market orientation is represented as an exogenous construct, while the three product management constructs are represented as mediating endogenous constructs.

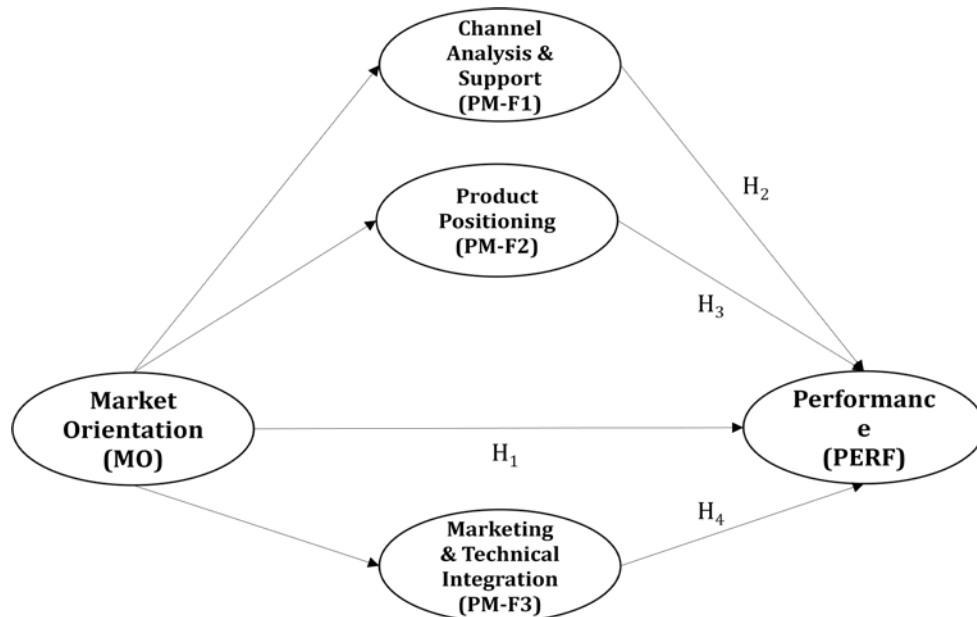


Figure 3.5-1 - Product Management Model

The following hypotheses are proposed to test this model:

Market orientation has a deep and rich history of research dating back more than 30 years, supporting the positive relationship between market orientation and firm performance (Narver and Slater 1990, Jaworski and Kohli 1993, Deshpandé *et al.* 1993). Using the MORTN scale captures both the cultural and behavioural components of the market orientation construct in one parsimonious scale. The cultural component as espoused by Narver and Slater (1990), measures how well market orientation is embedded in the shared values of the organization, while the behavioural focus of Kohli and Jaworski (1993) measures whether market orientation is rooted in the activities of the firm. These relationships have been widely supported through decades of research and multiple meta studies (Kirca *et al.* 2005, Rodriguez *et al.* 2004). For instance, Rodriguez,

et al. (2004) in their meta analysis found that the relationship between market orientation and business performance accounts for only about 12% of the effect, but that it is positive and consistent world-wide. This relationship is also supported in the SME literature (Pelham 1997, Gray *et al.* 1998, Verhees and Meulenber 2004). Thus hypothesis one is:

H₁ – Market Orientation (MO) positively affects firm performance

Channel Analysis & Support (PM-F1) fundamentally measures *external* boundary spanning capabilities of the firm. It speaks to formal and informal systems which monitor the product in the marketplace, through both qualitative and quantitative feedback. This feedback is processed by the firm through analysis and used to make decisions for such things as product phase out, pricing, sales support and forecasting. The efficiency of external boundary spanning activity should create the stage for more optimal decision making, which should ultimately be reflected in increased performance. Thus hypothesis two is:

H₂ – Channel Analysis/Support (PM-F1) positively mediates the market orientation - firm performance relationship

Product positioning (PM-F2) also measures *external* boundary spanning capability, which impacts the positional advantage of the product in the marketplace. This latent construct involves such activities as conducting research to benchmark products, obtaining customer feedback through primary research and conducting market tests. These activities are supported by appropriate business case analysis, which integrates such things as market forecasting and product feasibility. The external environment is also consistently monitored for product planning purposes. It measures the firm's ability to maintain and enhance its product position in the marketplace. Thus hypothesis three is:

H₃ – Product positioning (PM-F2) positively mediates the market orientation - firm performance relationship

Marketing & Technical Integration (PM-F3) on the other hand reflects a firm's *internal* boundary spanning capabilities as it relates to the interaction between the marketing and technical factions of the firm. It speaks to the permeability of internal functional interfaces; the sharing of ideas and information on an equitable basis. This

communication is sustained by both formal and ad hoc systems, which support product initiatives such as concept development, refinement and development. When combined with a market oriented culture it enhances the firm's ability to consistently deliver superior products. This cross functional capability enhances the firm's product-market fit, which should lead to increased firm performance. Thus hypothesis four is:

H₄ – Marketing/Technical Integration (PM-F3) positively mediates the market orientation - firm performance relationship

3.6. ANALYSIS AND RESULTS

3.6.1. METHOD OF ANALYSIS

Analysis was performed using Smart PLS (version 2.0.M3), a partial least square (PLS) based structural equation modelling (SEM) program. This PLS-SEM program assesses the psychometric properties of the outer (or measurement) model, while simultaneously estimating the parameters of the inner (or structural) model (Al-Gahtani *et al.* 2007). PLS appears to be gaining wider acceptability in management research including recent SME research (Brettel *et al.* 2007), since it provides certain advantages over covariance-based SEM analysis. This includes the fact that PLS models are not constrained by the assumption of normality, are effective for smaller sample sizes and have the ability to handle both formative and reflective indicators. Unlike, covariance based structural equation modelling, PLS models take into account measurement error through simultaneous regressions and thus do not employ goodness of fit measures as an indication of model robustness. It instead uses the significance of the path and the explained variance (R^2) of the model (Hulland 1999). Since it is designed to explain variance, it is well suited for exploratory research, predictive applications and/or theory building (Genfen *et al.* 2000).

Thus, the quality of any PLS model is based on its ability to satisfactorily describe the effects between latent constructs under investigation. As such, a two-tiered approach was applied which first examines the measurement model's quality, followed by an

assessment of the extent to which the model reproduces the real data structure (i.e. the structural model) (Götz *et al.* 2010).

3.6.2. THE MEASUREMENT MODEL

The approach begins with the measurement of the outer model, which specifies the relationship between observed indicator variables and their underlying constructs. This process involves the assessment of indicator and construct reliability as well as convergent and discriminant validities.

Indicator reliability specifies which part of the indicator's variance can be explained by the related latent variable. Fifty percent (50%) of an indicator's variance should be explained by the latent construct, indicating that the shared variance between an indicator and its construct is larger than the measurement error (Götz *et al.* 2010). This manifests itself into an indicator loading of 0.70 or greater, however weaker loadings are often observed when newly developed scales are used. Thus for reflective indicators, loadings less than 0.40 should be eliminated from PLS measurement models (Götz *et al.* 2010, Hulland 1999). As a result, some product management indicators below this threshold were removed, which included PM11, PM16, PM20, PM27; resulting in all product management and performance indicators except for PM24 exceeding 0.70 (see bolded indicator loadings in Table 3.6.2-1). Indicator loadings for market orientation on the other hand exceeded the 0.40 threshold, but several were below the rule of thumb of 0.70. Following precedence in recent research for the removal of low loading market orientation indicators to increase model goodness of fit (Narver *et al.* 2004), low loading indicators were systematically removed until indicator's variance explained by the latent construct exceeded 0.50. The removed indicators included MORes1, 3, 4 and 8, all of which loaded below or near 0.60.

Table 3.6.2-1 - Factor Loadings (bolded) and cross loadings					
	MO	PM-F1	PM-F2	PM-F3	PERF
MORes10	0.724	0.392	0.416	0.393	0.105
MORes2	0.805	0.543	0.467	0.459	0.206
MORes5	0.845	0.563	0.501	0.374	0.231
MORes6	0.793	0.580	0.466	0.319	0.151
MORes7	0.587	0.362	0.242	0.328	0.300
MORes9	0.652	0.362	0.417	0.332	0.180
PM1	0.475	0.704	0.537	0.388	0.219
PM19	0.487	0.755	0.536	0.488	0.293
PM3	0.435	0.685	0.426	0.384	0.215
PM5	0.477	0.735	0.436	0.461	0.344
PM6	0.470	0.770	0.458	0.440	0.249
PM20	0.470	0.550	0.806	0.397	0.263
PM24	0.369	0.404	0.656	0.364	0.134
PM9	0.499	0.598	0.819	0.434	0.248
PM17	0.368	0.381	0.715	0.289	0.184
PM21	0.485	0.596	0.504	0.834	0.302
PM22	0.359	0.421	0.292	0.817	0.290
PM23	0.365	0.423	0.411	0.820	0.231
PERFORM1	0.191	0.333	0.231	0.257	0.836
PERFORM2	0.209	0.333	0.255	0.328	0.870
PERFORM3	0.200	0.252	0.211	0.235	0.715
PERFORM4	0.146	0.217	0.133	0.208	0.776
PERFORM5	0.259	0.334	0.321	0.287	0.807
PERFORM6	0.226	0.248	0.165	0.278	0.787

A common measure for examining *convergent validity* is the “average variance extracted” (AVE). It represents the indicator variance captured by the construct (including measurement error), relative to the total variance (Götz *et al.* 2010). A threshold of greater than 0.5 indicates that there is more indicator variances than variance due to error. Average variance extracted (AVE) also exceeded 0.50 for all constructs.

Indicator loadings and cross loadings for all of the latent constructs were then examined as per Table 3.6.2-1. This established that all items load well on their respective constructs and, that even for indicators loading below 0.70, no cross loadings are indicated (Yoo and Alavi 2001). In addition, each indicator loaded on their respective construct with high significance ($p > .0001$) based on the t-statistics of the outer model, which ranged from 10.52 to 51.78. These findings thus confirm the convergent validity of the latent constructs for the proposed product management model.

Table 3.6.2-2 - Measurement Model Assessment

Latent Variable	AVE	CR	Cronbach's Alpha	MO	PERF	PM-F1	PM-F2	PM-F3
MO	0.528	0.869	0.817	0.727	-	-	-	-
PERF	0.649	0.917	0.893	0.220	0.806	-	-	-
PM Factor 1	0.528	0.848	0.776	0.616	0.256	0.726	-	-
PM Factor 2	0.539	0.823	0.715	0.589	0.245	0.655	0.734	-
PM Factor 3	0.680	0.864	0.767	0.549	0.244	0.577	0.488	0.824

Measures of *construct reliability* reflect how well a construct is measured by their assigned indicators (Götz *et al.* 2010). It is important that the indicators jointly measure the construct adequately, thus reliability results presented in Table 3.6.2-2 include both composite reliability and Crochbach’s alpha. For the proposed product management model, all reliability measures easily exceeded the recommend thresholds of 0.70 (Hair *et al.* 2006, Nunnally and Bernstein 1994, Bagozzi and Yi 1988), indicating strong correlation and establishing them as reliable measures of their respective latent constructs.

Discriminant validity on the other hand refers to the dissimilarity between the measurement tool’s ability to measure different constructs (Götz *et al.* 2010). Thus, shared variance between the latent constructs’ indicators must be larger than the variance shared with other latent variables (Hulland 1999). The latent variable’s average variance extracted (AVE) should be larger than the common variance (squared correlations) relative to any other of the model’s constructs (Fornell and Larcker 1981) in order to support discriminant validity. Table 3.6.2-2 indicates that the square root of the AVEs (e.g. elements bolded in the diagonals) are in all cases greater than the off-diagonal row and column elements. This supports the discriminant validity of the scales used.

3.6.3. EVALUATION OF THE STRUCTURAL MODEL

Figure 3.6 -1 represents the generic product management model, and its associated indicator variables. The three product management factors, channel analysis/support (PM-F1), product positioning (PM-F2) and marketing/technical integration (PM-F3) are shown to mediate the relationship between market orientation and firm performance.

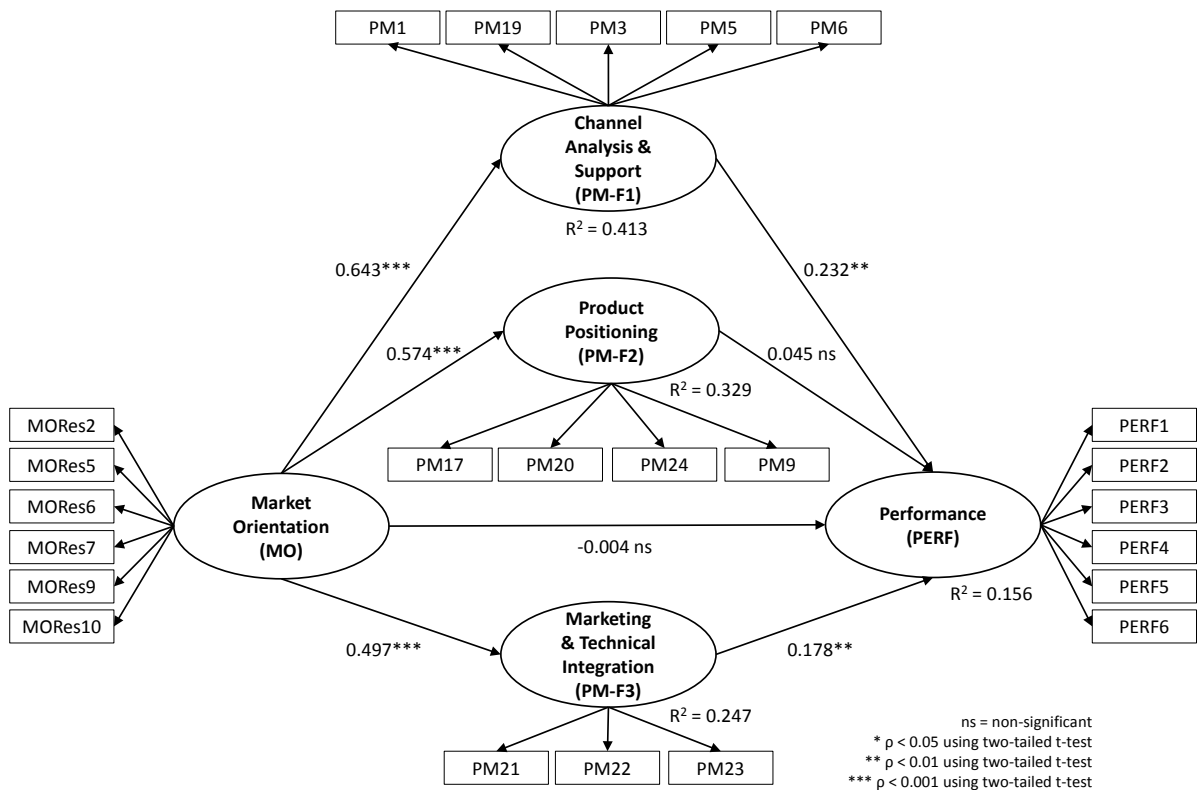


Figure 3.6-1 - Product Management Model with Structural Loadings

Beta loadings and their associated significance are outlined in figure 3.6-1. Since partial least squares models predict variance, R^2 values are included for each endogenous latent construct. All significant path coefficients are positive, indicating that their theoretical direction is correct, thus establishing nomological validity of the model.

3.7. RESULTS

Support for the respective hypotheses was determined via the statistical significance of the path loadings. The strength of the model is based on the predicted R^2 of the endogenous constructs, specifically the predicted R^2 of firm performance.

The most significant finding in this study was that two of the three product management constructs fully mediated the market orientation – firm performance relationship. This result is somewhat unexpected given the substantial base of research on the positive relations between market orientation and performance (Pelham 1997, Narver and Slater

1990, Jaworski and Kohli 1993, Deshpandé *et al.* 1993, Kirca *et al.* 2005, Gray *et al.* 1998, Verhees and Meulenbergh 2004, Rodriguez *et al.* 2004). However, it does substantiate some of the SME literature, which questions market orientation's overriding importance in all conditions (Greenley 1995, Pelham and Wilson 1995, Becherer *et al.* 2001, Frishammar 2009). Thus, H₁ is rejected.

The two significant mediating constructs included channel analysis/support (PM-F1) and marketing/technical integration (PM-F3). The former measures the *external* boundary spanning activities of the firm, while the latter measures the *internal* coordination efforts between functional areas. Thus, H₂ and H₄ are supported. On the other hand, product positioning (PM-F2) had no effect on firm performance in the presence of PM-F1 and PM-F3. This insignificant relationship is also somewhat unexpected, since this construct is related to many of the key product management activities deemed to drive successful organizations and their performance. Such things as proper product benchmarking, strong market research, integration of customer feedback and business case analysis did not have a strong relationship with overall firm performance. Thus, H₃ is rejected.

Looking specifically at PM-F1 - channel analysis/support, this *externally* focused construct involves understanding market trends through obtaining, analyzing and acting upon channel information. This information processing is used by the firm to justify actions ranging from price adjustments to product line support. It involves proactively spanning the boundaries outside of the firm to gather relevant product information. Its impact on firm performance supports much of the product management literature, which emphasizes the importance of external boundary spanning activities (Lyonski 1985, Lyonski and Woodside 1989, Tyagi and Sawhney 2010, Lyonski *et al.* 1988).

Conversely, PM-F3 - market/technical integration is an *internal* capability, which speaks to the cross-functional culture of the organization and its ability effectively coordinate activities between and within functional areas. This balanced approach between the marketing and technical factions of the organization is one of the cornerstones of the product management system. Interestingly, both the external information gathering (i.e. obtaining information as input to the decision process) and internal marketing/technical

integration (i.e. the firm's ability to process information into decisions) together account for all of the explained variance (15.6%) of firm performance.

3.8. DISCUSSION

In this study, market orientation did not behave as predicted by the literature, having no effect on firm performance. This suggests that market orientation in the presence of certain aspects of product management behaviour, does not impact firm performance. These results are entirely due to the effect of two of the three product management constructs, namely the *external* boundary spanning capability of channel analysis/support (PM-F1) and the *internal* boundary spanning capability of marketing/technical integration (PM-F3). The other product management factor, product positioning (PM-F2), showed no power in this model. Thus, both of these external and internal product management capabilities appear to be good predictors of performance.

This outcome is academically important since this is the first study of its kind to investigate product management activities and their relationship to firm performance. The results support much of the product management literature, which infers that more emphasis on external boundary spanning should affect overall firm performance (Gorchels 2005, Tyagi and Sawhney 2010). Although some authors have measured various aspects of product manager's performance (Lysonski 1985, Lysonski and Woodside 1989, Tyagi and Sawhney 2010, Lysonski *et al.* 1988), this is the first study to link these external boundary spanning activities directly to overall firm performance. In a similar fashion, there has been a significant amount of literature highlighting the benefits of cross-functional integration, specifically between the marketing and technological factions within the organization. Research on innovation has shown that improvements in SME's innovation practices can be achieved by beginning to structure organizations to allow for improved cross-functional and cross-disciplinary communication (Vermeulen 2005). This evidence lends credibility to the importance of proper and effective product management activities within small and medium-sized enterprises. It also provides empirical evidence that boundary spanning firm activities contribute positively to overall firm performance.

There may also be relevance for practitioners. Much has been written with respect to the development of a market oriented culture within SMEs. Investments in building this culture and associated systems have been implemented by firms both large and small. However, this study indicates that the development of a market oriented culture, may be restricted if firms do not invest in promoting external and internal boundary spanning activities. Firms with strong functional areas, content with merely analysing market information, may be limiting their performance by not encouraging external and/or internal boundary spanning activities. The ability of the firm to proactively garner feedback from the market about their products, conduct proper analysis and make informed decisions seems to separate higher performing SMEs in this study. When combined with strong internal integration between the marketing and technological factions, this appears to further increase firm performance. Good external information gathering, processed by an integrated multifunctional culture, results in the highest firm performance in this study.

3.9. CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

This study is exploratory in nature and thus care must be taken to not over-generalize these results. As a result, future research should investigate other firm capabilities related to both product management and market orientation. Specifically the mediating effect of innovation on performance (Kirca *et al.* 2005) and other aspects of market orientation, such as proactive market orientation (Narver *et al.* 2004) and aspects of entrepreneurial orientation (Lumpkin and Dess 1996), could add additional explanatory power to the model. Neither has any attempt been made to link the growing body of work on effectuation within the entrepreneurship literature (Frishammar 2009, Sarasvathy and Dew 2005, Sarasvathy 2001, Morrish 2009). Whether SMEs behave entrepreneurially through effectual networks to create new markets or merely conduct research to exploit predictable markets (the casual process) is yet to be explored. This research seems to generally indicate the latter in SMEs, but no controls for firm age or new ventures were used. How internal and external product management connections are rearranged to create artifacts such as new products, specifically in new ventures, would be an interesting avenue for future research.

In addition, objective, quantifiable measures of performance (e.g. ROI, ROA, etc.) could be added to support the subjective measures of firm performance used in this study. Multiple dimensions of performance could reduce the potential bias believed to result from the close relationship between some market oriented behaviours and firm performance (Pelham 1997). Lastly, the results of this study should be replicated in other geographic areas, for example with US or European SMEs. Using a more homogeneous population could also add additional insight to this area of research.

Notwithstanding the above concerns, this study has both academic and practical implications. First, it adds to the literature on the mediation effects between market orientation and firm performance, specifically in the area of small and medium size enterprise (SME) orientation. According to Olson *et al.* (2005) how work is coordinated within the firm should receive more attention in the strategy implementation research. From a practical perspective, senior SME management may be able to improve firm performance by investing in the development of both external and internal product management capabilities. Although organizations large and small perform many of these product management boundary spanning activities, those that excel at their integration should perform better and more easily adapt to their competitive environments.

Perhaps the most salient finding in this study is that product management appears to be a good predictor of firm performance, even given the broad industry categories used in this Canada wide study. The full mediation between market orientation and firm performance adds to the empirical body of knowledge in the SME literature by suggesting that product management ability may account for a significant proportion of performance irrespective of how market orientated the firm may be.

Product management is a broad construct whose tasks span the disparate functional areas of the firm. This research is the first study of its kind to link product management behaviour with firm performance. It establishes an empirical link between these boundary spanning activities by relating the extant product management literature with

that of market orientation. Perhaps the time has come to rekindle academic interest in product management; an area of research that has languished in the management literature.

3.10. APPENDIX

Product Management measures

- PM01 We have strong systems for deciding which products and/or service opportunities to pursue or which to phase-out
- PM02 Our product and/or service pricing (i.e. base price, discount schedules, etc.) are clearly communicated to all stakeholders
- PM03 Our product and/or service pricing (i.e. base price, discount schedules, etc.) is determined via careful analysis and feedback from the marketplace
- PM04 Our sales force or sales partners are consistently kept informed about our product and/or service strategy
- PM05 Our sales force or sales partners consistently receive up to date product and/or service support (e.g. training, technical support, demonstrations and presentations)
- PM06 Sales data is consistently analyzed and measured against marketing programs and forecasts

- PM07 We foster communication about our products and/or services within our firm in order to generate product improvement ideas
- PM08 We foster communication about our products and/or services <u>outside of our firm</u> in order to generate product improvement ideas
- PM09 Our product and/or service plans are supported by strong business case analysis

- PM10 Our marketing budget is allocated by product and/or service category rather than generally at the firm level
- PM11 We consistently monitor the profitability of each of our products and/or services

- PM12 We consistently monitor our customer service by product and/or service category

- PM13 Our firm consistently reviews customer comments, recalls and technical service data as input for future decisions about our products and/or services
- PM14 Our firm consistently seeks customer input into the design of our products and/or services

- PM15 Competitive research and analysis drives our product and/or service planning

- PM16 We consistently scan our industry for new ideas, trends or phenomena to improve our product and/or service offerings
- PM17 We systematically benchmark our product and/or service offerings against industry leaders

- PM18 We have well established systems for setting priorities for our product or service offerings

- PM19 We have well established systems for forecasting and monitoring product and/or service unit sales
- PM20 We have well established systems to monitor our market share by product and/or service category
- PM21 We have well established systems for involving business, marketing and technical personnel in our product and/or service efforts
- PM22 Marketing and technical personnel communicate effectively and work well together when it comes to product and/or service issues
- PM23 Marketing and technical personnel participate equally in developing new product and/or service concepts
- PM24 We consistently use pre-test marketing (e.g. simulated market tests) to establish the viability of new products and/or services
- PM25 We take a team approach to planning and developing our product and/or service promotional activities
- PM26 We consistently monitor our external environment (e.g. social, political, economic, regulatory) in order to avoid surprises with respect to our products or services
- PM27 We frequently conduct formal research studies to prove or disprove our pre-conceived notions about our products and/or services
- PM28 We prefer to take a long-term approach to our product and/or service offerings rather than focusing merely on short term objectives
- PM29 Our products and/or services are mainly driven by technical superiority
- PM30 We consistently monitor the effectiveness of our promotional activities by product and/or service category
- PM31 Our products and services are mainly driven by market requests
- PM32 External information is consistently communicated to internal staff for decision making about our products and/or services
- PM33 Once a product or service is introduced to the market, we regularly perform an analysis of what went right and what went wrong, in an effort to continuously improve

Market Orientation measures

- MORes1 Our business objectives are driven primarily by customer satisfaction
- MORes2 We constantly monitor our level of commitment and orientation to serving customer needs.
- MORes3 We freely communicate information about our successful and unsuccessful customer experiences across all business functions.
- MORes4 Our strategy for competitive advantage is based on our understanding of customers needs
- MORes5 We measure customer satisfaction systematically and frequently
- MORes6 We have routine or regular measures of customer service

- MORes7 We are more customer-focused than our competitors
- MORes8 I believe this business exists primarily to serve customers
- MORes9 We poll end users at least once a year to assess the quality of our products and services
- MORes10 Data on customer satisfaction are disseminated at all levels of the organization on regular basis.

Performance measure

- PERFORM1 Over the past year, our sales growth was _____ when compared to our competitors
- PERFORM2 Over the past year, our profit growth was _____ when compared to our competitors
- PERFORM3 Over the past year, our employment growth was _____ when compared to our competitors
- PERFORM4 Over the past year, the overall performance of the business met expectations
- PERFORM5 Over the past year, the overall performance of the business exceeded that of our major competitors
- PERFORM6 Over the past year, top management was very satisfied with the overall performance of the business

3.11. REFERENCES

- Al-Gahtani, S.S., Hubona, G.S. and Wang, J., (2007), "Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT", *Information Management*, Vol.44 pp. 681-691.
- Bagozzi, R.P. and Yi, Y., (1988), "On the evaluation of structural equation models", *Academy of Marketing Science Journal*, Vol.16 No.1, pp. 74-95.
- Becherer, R.C., Halstead, D. and Haynes, P.J., (2003), "Marketing orientation in SMEs: Effects of the internet environment", *New England Journal of Entrepreneurship*, Vol.6 No.1, pp. 13-22.
- Becherer, R.C., Halstead, D. and Haynes, P.J., (2001), "Marketing orientation in SMEs: Effects of the internal environment", *Journal of Research in Marketing and Entrepreneurship*, Vol.3 No.1, pp. 1-17.
- Brettel, M., Engelen, A., Heinemann, F. and Kessell, A., (2007), "The role of market-oriented organizational culture in new entrepreneurial ventures", *Journal of Research in Marketing and Entrepreneurship*, Vol.9 No.1, pp. 40-66.
- Clewett, R. and Stasch, S., (1975), "Shifting role of the product manager", *Harvard Business Review*, Vol.53 No.1, pp. 65-73.
- Cossé, T. and Swan, J., (1983), "Strategic marketing planning by product managers—room for improvement?", *The Journal of Marketing*, Vol.47 No.3, pp. 92-103.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L., (1989), "Examining product managers' job satisfaction and performance using selected organizational behavior variables", *Journal of the Academy of Marketing Science*, Vol.17 No.2, pp. 147-155.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L., (1984), "Differences between industrial and consumer product managers", *Industrial Marketing Management*, Vol.13 No.3, pp. 171-180.
- Dawes, P.L. and Patterson, P.G., (1988), "The performance of industrial and consumer product managers", *Industrial Marketing Management*, Vol.17 No.1, pp. 73-84.
- Deshpandé, R. and Farley, J., (1998), "The market orientation construct: Correlations, culture, and comprehensiveness", *Journal of Market-focused Management*, Vol.2 No.3, pp. 237-239.
- Deshpandé, R., Farley, J. and Webster, F., (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol.57 No.1, pp. 23-38.
- Dominguez, G., (1971), *Product management*. American Management Association, New York.
- Eckles, R. and Novotny, T.J., (1984), "Industrial product managers: Authority and responsibility", *Industrial Marketing Management*, Vol.13 No.2, pp. 71-75.

- Fornell, C. and Larcker, D.F., (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol.18 No.1, pp. 39-50.
- Frishammar, J., (2009), "The overestimated role of strategic orientations for international performance in smaller firms", *Journal of international entrepreneurship*, Vol.7 No.1, pp. 57.
- Gemmill, R.G., (1972), "The product manager as an influence agent", *Journal of Marketing*, Vol.36 No.1, pp. 26-30.
- Genfen, D., Straub, D.W. and Boudreau, M.C., (2000), "Structural equation modeling and regression: guidelines for research practice" *Communications of the Association for Information Systems*, <http://aisel.aisnet.org/cais/>.
- Giese, T.D. and Wiesenberger, T.M., (1982), "Product manager in perspective", *Journal of Business Research*, Vol.10 No.3, pp. 267-277.
- Gorchels, L., (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- Götz, O., Krafft, M. and Liehr-Gobbers, K., 2010. Evaluation of structural equation models using the partial least squares (PLS) approach. In: V. Esposito Vinzi, ed, *Handbook of Partial Least Squares*. 1st edn. Verlag Berlin Heidelberg: Springer Handbooks of Computational Statistics, pp. 691-711.
- Gray, B., Matear, S., Boshoff, C. and Matheson, P., (1998), "Developing a better measure of market orientation", *European Journal of Marketing*, Vol.32 No.9/10, pp. 884-903.
- Greenley, G.E., (1995), "Market orientation and company performance: Empirical evidence from UK companies", *British Journal of Management*, Vol.6 No.1, pp. 1-13.
- Hadjimanolis, A., (2000), "A resource-based view of innovativeness in small firms", *Technology Analysis and Strategic Management*, Vol.12 No.2, pp. 263-281.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L., (2006), *Multivariate Data Analysis*. Pearson Prentice Hall, Upper Saddle River, New Jersey.
- Hansen, D.J. and Eggers, F., (2010), "The marketing/entrepreneurship interface; a report on the "Charleston Summit"", *Journal of Research in Marketing and Entrepreneurship*, Vol.12 No.1, pp. 42-53.
- Huang, X., Soutar, G.N. and Brown, A., (2002), "New product development processes in small and medium-sized enterprises: Some Australian evidence", *Journal of Small Business Management*, Vol.40 No.1, pp. 27-42.
- Hulland, J., (1999), "Use of partial least squares (PLS) in strategic management research: A review of four recent studies", *Strategic Management Journal*, Vol.20 No.2, pp. 195-204.
- Jaworski, B. and Kohli, A., (1993), "Market orientation: Antecedents and consequences", *The Journal of Marketing*, Vol.57 No.3, pp. 53-70.

- Karlsson, C. and Olsson, O., (1998), "Product innovation in small and large enterprises", *Small Business Economics*, Vol.10 No.1, pp. 31-46.
- Katsanis, L.P., (2006), "An assessment of professional training for product managers in the pharmaceutical industry", *The Journal of Product Brand Management*, Vol.15 No.5, pp. 324-329.
- Katsanis, L.P., Laurin, J.,G. and Pitta, D.A., (1996), "How should product managers' job performance be evaluated in emerging product management systems?", *Journal of Product and Brand Management*, Vol.5 No.6, pp. 5-23.
- Katsanis, L.P. and Pitta, D.A., (1995), "Punctuated equilibrium and the evolution of the product manager", *The Journal of Product and Brand Management*, Vol.4 No.3, pp. 49-60.
- Kelly, P.,J. and Hise, R.,T., (1979), "Industrial and consumer goods product managers are different", *Industrial Marketing Management*, Vol.8 No.4, pp. 325-332.
- Keskin, H., (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs", *European Journal of Innovation Management*, Vol.9 No.4, pp. 396-417.
- Kirca, A., Jayachandran, S. and Bearden, W., (2005), "Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance", *The Journal of Marketing*, Vol.69 No.2, pp. 24-41.
- Lehmann, D. and Winer, R., (2005), *Product Management*. McGraw-Hill/Irwin, Boston.
- Luck, D.J., (1969), "Interfaces of a product manager", *Journal of Marketing*, Vol.33 No.4, pp. 32-36.
- Lumpkin, G.T. and Dess, G.D., (1996), "Clarifying the entrepreneurial orientation construct and linking it to performance", *Academy of Management Review*, Vol.21 No.1, pp. 135-172.
- Lysonski, S., (1985), "A boundary theory investigation of the product manager's role", *The Journal of Marketing*, Vol.49 No.1, pp. 26-40.
- Lysonski, S., Singer, A. and Wilemon, D., (1988), "Coping with environmental uncertainty and boundary spanning in the product manager's role", *The Journal of Services Marketing*, Vol.2 No.4, pp. 15-26.
- Lysonski, S. and Woodside, A., (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6 No.3, pp. 169-184.
- Miles, M. and Darroch, J., (2008), "A Commentary on Current Research at the Marketing and Entrepreneurship Interface", *Journal of Small Business Management*, Vol.46 No.1, pp. 46-49.
- Morrish, S., (2009), "Portfolio entrepreneurs: an effectual approach to multiple venture development", *Journal of Research in Marketing and Entrepreneurship*, Vol.11 No.1, pp. 32-48.

- Murphy, W. and Gorchels, L., (1996), "How to improve product management effectiveness", *Industrial Marketing Management*, Vol.25 No.1, pp. 47-58.
- Narver, J. and Slater, S., (1990), "The effect of a market orientation on business profitability", *The Journal of Marketing*, Vol.54 No.4, pp. 20-35.
- Narver, J., Slater, S. and MacLachlan, D., (2004), "Responsive and proactive market orientation and new-product success", *The Journal of Product Innovation Management*, Vol.21 No.5, pp. 334-347.
- Nunnally, J. and Bernstein, I., (1994), *Psychometric Theory*. McGraw Hill Inc., New York.
- O'Regan, N., Ghobadian, A. and Sims, M., (2006), "Fast tracking innovation in manufacturing SMEs", *Technovation*, Vol.26 No.2, pp. 251-261.
- Pelham, A., (2000), "Market orientation and other potential influences on performance in small and medium-sized manufacturing firms", *Journal of Small Business Management*, Vol.38 No.1, pp. 48-67.
- Pelham, A., (1999), "Influence of environment, strategy, and market orientation on performance in small manufacturing firms", *Journal of Business Research*, Vol.45 No.1, pp. 33-46.
- Pelham, A., (1997), "Mediating influences on the relationship between market orientation and profitability in small industrial firms", *Journal of Marketing Theory and Practice*, Vol.5 No.3, pp. 55-77.
- Pelham, A. and Wilson, D., (1995), "A Longitudinal Study of the Impact of Market Structure, Firm Structure, Strategy, and Market Orientation Culture on Dimensions of Small-Firm Performance" *Journal of the Academy of Marketing Science*.
- Queleh, J., Farris, P. and Oliver, J., (1992), "The product management audit: design and survey findings", *The Journal of Product and Brand Management*, Vol.1 No.4, pp. 21-34.
- Roach, D.C., (2011a), "The impact of product management on SME performance - evidence from Canadian firms", *Journal of Small Business and Enterprise Development*, Vol.18 No.4.
- Rodriguez, C., Carrillat, F. and Jaramillo, F., (2004), "A meta-analysis of the relationship between market orientation and business performance: evidence from five continents", *International Journal of Research in Marketing*, Vol.21 No.2, pp. 179-200.
- Sarasvathy, S.D., (2001), "Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency", *Academy of Management. The Academy of Management Review*, Vol.26 No.2, pp. 243-263.
- Sarasvathy, S.D. and Dew, N., (2005), "New market creation through transformation", *Journal of evolutionary economics*, Vol.15 No.5, pp. 533-565.
- Shoham, A., Rose, G.M. and Kropp, F., (2005), "Market orientation and performance: a meta-analysis", *Marketing Intelligence & Planning*, Vol.23 No.4/5, pp. 435-454.

- Strieter, J., Gupta, A.K., Raj, S.P. and Wilemon, D., (1999), "Product management and the marketing of financial services", *International Journal of Bank Marketing*, Vol.17 No.7, pp. 342-354.
- Tyagi, R.K. and Sawhney, S.S., (2010), "High-performance product management: The impact of structure, process, competencies, and role definition", *The Journal of Product Innovation Management*, Vol.27 No.1, pp. 83-96.
- Ulsay, C. and Teach, R.D., (2008), "Research Note: Marketing/entrepreneurship interface research priorities (2010-2012)", *Journal of Research in Marketing and Entrepreneurship*, Vol.10 No.1, pp. 70-75.
- Verhees, F. and Meulenber, M., (2004), "Market orientation, innovativeness, product innovation, and performance in small firms", *Journal of Small Business Management*, Vol.42 No.2, pp. 134-154.
- Vermeulen, P., (2005), "Uncovering barriers to complex incremental product innovation in small and medium-sized financial services firms", *Journal of Small Business Management*, Vol.43 No.4, pp. 432-452.
- Wichman, W., (1986), "Marketing commentary: the case for product management", *United States banker*, Vol.95 No.8, pp. 36-42.
- Wood, V. and Tandon, S., (1994), "Key components in product management success (and failure)", *The Journal of Product Brand Management*, Vol.3 No.1, pp. 19-38.
- Woodcock, D., Mosey, S. and Wood, T., (2000), "New product development in British SMEs", *European Journal of Innovation Management*, Vol.3 No.4, pp. 212-222.
- Yoo, Y. and Alavi, M., (2001), "Media and group cohesion: Relative influences on social presence, task participation, and group consensus", *MIS Quarterly*, Vol.25 No.3, pp. 371-390.

CHAPTER 4 DOES PRODUCT MANAGEMENT CAPABILITY INFLUENCE FIRM PERFORMANCE?

4.1. ABSTRACT

Product management has a long history of practice as an organizational concept, which predates most modern management research. Product management activities span the external environment of the firm obtaining and simplifying information, while internally spanning across functional specialties; processing information into action. Building on the resource based view of the firm and boundary theory, this research uses the extant product management literature as a proxy to measure boundary spanning capability of the firm. This capability is compared to other well established firm capabilities; namely market orientation and firm-level innovativeness. Results suggest that in the presence of external product management capability, defined as channel bonding activities, market orientation becomes insignificant, while firm level innovativeness continues to have a small mediating effect on performance. Internal product management capabilities, defined as market and technical integration are shown to negatively moderate the external product management capability - firm performance relationship. Theoretical implications include linking boundary theory and the resource based view of the firm (RBV) by examining boundary spanning as a set of firm capabilities. Practical implications include the strong relationship between external spanning capabilities and firm performance and the dampening effect of cross-functional integration on firm performance.

4.2. INTRODUCTION

Product management as an organizational concept has a long history of practice, which predates most modern academic management research (Sands 1979, Luck 1969, Dominguez 1971, Gemmill 1972, Buell 1975). Born in the management culture of 1930's Procter and Gamble, product management involved the integration of all of the activities required to successfully bring products to commercial success and maturity. This product centric "concept through to marketing" approach involved the spanning of internal and external boundaries of the firm, much of which involved optimizing the marketing – innovation interface. These boundary spanning activities were classically managed by one individual known as a product manager, who in effect acted as a mini general manager of a product or product line.

Over the past few decades, product managers have been largely replaced by cross-functional teams (Griffin and Hauser 1993, Cooper and Kleinschmidt 1993, Katsanis *et*

al. 1996, Katsanis 2006), who have taken over the spanning responsibilities traditionally associated with this classic function. These teams have become ubiquitous within most organizations (McDonough III 2000) largely driven by the firm's need to become more innovative, while at the same time getting closer to their customers. This focus on integrating market orientation and innovativeness is however not new to the domain of management. More than 50 years ago Peter Drucker (1954) asserted that the singular purpose of business is to create a customer and in the process of creating a customer, a business must excel at two things; marketing and innovation. He defined marketing in terms of the firm's fundamental understanding of what customers seek, value and need. In parallel he defined innovation as "the provision of different economic satisfaction" (Drucker 1954) by providing better and more economic goods (i.e. value creation) leading to new levels of potential satisfaction. Thus, marketing orientation involves knowing and understanding the customer, while innovation is the ability to provide a different product (or service) to create new satisfaction. Although Drucker does not explicitly promote cross-functional or spanning activities, many researchers have extolled the benefits of this management philosophy (Griffin and Hauser 1993, Cooper and Kleinschmidt 1993, Day 1994, Tushman and Scanlan 1981a, Tushman and Scanlan 1981b). What is apparent is that market orientation and innovativeness represent firm-level capability that impact firm performance (Hult *et al.* 2005, Menguc and Seigyoung 2006, Hult and Ketchen 2001)

A number of studies in the management literature have looked at the effect of market orientation on firm performance (Hult *et al.* 2005, Srivastava *et al.* 2001, Hult and Ketchen 2001, Slater and Narver 1998, Slater and Narver 1999). Valid measures of the construct are credited to the early work of Narver and Slater (1990) and Jaworski and Kohli (1993) who empirically related this overarching construct to firm performance. From this perspective, market orientation involves the implementation of the marketing concept by enhancing the firm's ability to anticipate, react and capitalize on changes in its environment leading to superior performance (Shoham *et al.* 2005). Unfortunately, because of this narrow focus, there remains an insufficient understanding of the form and nature of this construct (Foley and Fahy 2009), specifically as it relates to firm

innovativeness. This relationship with innovativeness has a long and checkered history, beginning with the early efforts of Deshpandé *et al.* (1993) who created the first empirical work examining innovation and customer orientation (Hurley and Hult 1998). This fundamental relationship has continued to develop, with different concepts used by researchers to analyze the innovation–performance relationship (Atuahene-Gima 1996, Han *et al.* 1998, Slater and Narver 1995, Verhees and Meulenber 2004, Deshpandé and Farley 2004). These studies however frequently present mixed findings and unlike this study generally investigate large, established firms (Rosenbusch *et al.* 2010).

Although product management is generally considered a marketing function (Kahn 2001), at the core of this set of activities is the concept of boundary spanning. This concept reflects the actions required to assimilate external information for processing internally. The product management literature highlights this concept as an example of Aldrich and Herker's (1977) boundary theory at work (Lysonski 1985, Lysonski and Woodside 1989). This boundary theory however predates even early work in the area of the resource based view of the firm (Barney 1991, Wernerfelt 1984), but continues to garner academic interest as a way to gain further insight and understanding into the firm and its performance (Day 1994, Tushman and Scanlan 1981a, Aldrich and Herker 1977, Marrone *et al.* 2007, Stock 2006, Singh 1998). As a result, this research aims to fill a gap in the literature by examining product management as firm capability, thus bridging the gap between boundary theory and the resourced based view of the firm.

What is apparent is that the spanning activities traditionally associated with the product management function of the firm have not been adequately addressed by either the market orientation or firm innovativeness literature. In order to do so requires the isolation of these spanning activities from these better known constructs in order to evaluate their impact on firm performance. Clearly, companies still rely on a system to coordinate the many activities in developing and marketing their products and services. For these reasons, the tasks traditionally associated with the function of product management must still be performed by firms large or small. This leads to looking at product management as a set of organizational boundary spanning capabilities, which must be nurtured by the firm in order to succeed in the marketplace. This study proposes

to address this gap in the strategic management and marketing literatures by investigating these boundary spanning activities and their relationship to firm performance.

This paper begins with proposing a theoretical framework followed by a review of the market orientation, innovativeness and product management literatures. Hypotheses are then developed and tested using a sample of Canadian small and medium size manufacturers.

4.3. THEORETICAL FRAMEWORK

The resource-based view (RBV) (Barney 1991, Wernerfelt 1984), while not without critics (Eisenhardt and Martin 2000, Wang and Ahmed 2007, Ketchen *et al.* 2007, Zahra *et al.* 2006, Priem and Butler 2001) provides an appropriate theoretical framework to examine market-based resources (Day and Wensley 1988, Srivastava *et al.* 2001), firm-level capabilities represented by market orientation (Hult *et al.* 2005, Menguc and Auh 2008, Hult and Ketchen 2001), and firm innovativeness (Paladino 2007, Paladino 2008). Market-based resources, whether relational or informational (Srivastava *et al.* 2001), are combined through organizational processes to create capabilities such as product innovation management, customer relationship management, or market orientation. These market-based capabilities can be applied to create customer value in ways that the competition cannot imitate thereby leading to a sustained competitive advantage.

Srivastava *et al.* (2001) provide a bridge between marketing theory and the resource based view, arguing that most marketing theorists including Day (1994) and Kohli and Jaworski (1990) devote little attention to applying the RBV as their frame of reference. They link the RBV and marketing by employing a firm specific (or inside-out) approach, focusing on utilizing resources to establish competitive advantage. These market-specific resources they argue must be leveraged by market-facing processes to create customer value, resulting in competitive advantage and ultimately superior performance (Srivastava *et al.* 2001). This leads to distinguishing between assets, processes and capabilities as elements of any resource framework. They distinguish between relational and intellectual assets, with the former defined as intertwined *external* relationships that are not fully owned or controlled by the firm, while the latter relates to *internal* know-

how embedded in individuals or processes. These marketing-specific resources, combine to create customer value via market based processes, which (for the purposes of this study) include product management.

Day (1994), providing a link between marketing theory and the strategic management literature, refers to outside-in, inside-out and boundary spanning capabilities of the firm. He argues that market driven firms through their market oriented culture engage in inside-out processing capabilities such as technology (or product) development, cost control and manufacturing, while simultaneously engaging in outside-in capabilities such as market sensing and customer linking. The third capability he defines as spanning processes, which he argues are required to integrate inside-out and outside-in capabilities (Day 1994). Under his model, classic *external* product management responsibilities such as market sensing, technology monitoring and channel bonding are linked to *internal* product management responsibilities, which include technology development, cost control and marketing management through spanning processes. Examples of these spanning processes include pricing, product development and customer service.

Other authors take a boundary theory approach acknowledging the existence of external and internal boundaries of the organization (Aldrich and Herker 1977). They argue that *external* information is received by the firm through boundary roles, which buffer, moderate and/or influence environmental elements. These external boundary roles are exposed to overwhelming amounts of information thus must provide a filtering and facilitation role; translating information so that it has relevance to the organization (Tushman and Scanlan 1981a). Since all information is not of equal importance, what permeates the external-internal interface is inferred rather than raw data. This protects the firm from overload, through a process of selection, consolidation, delay or storage of information (Tushman and Scanlan 1981a). The downside of this processing is that communication across boundaries can be prone to bias and loss because of the specialized semantics used between functional units of the firm (Hsu *et al.* 2007).

Figure 4.3-1 is a graphical representation of this process, where external information is filtered and processed at the interface allowing for internal understanding and

comprehension by the firm's functional (or cross-functional) skill sets. In this model, external spanning activity is filtered by organizational boundary spanning activity using an outside-in process. This pre-processed information is made available to cross-functional management teams who interpret it through their internal spanning (or inside-out) activities. Some loss of fidelity is inherent in this process, which can result in such things as loss of urgency, prioritization and competitive threat. Also, internal spanning processes likely involve some level of consensus building, which is both time consuming and subject to compromise. Thus, information from the external spanning process is likely attenuated by internal spanning activities of the firm. The optimization of this interaction, which is valuable, rare, inimitable and non-substitutable (a.k.a. VRIN), should create strategic value that is not easily replicated, resulting in a competitive advantage and ultimately superior performance (Barney 1991, Wernerfelt 1984, Eisenhardt and Martin 2000).

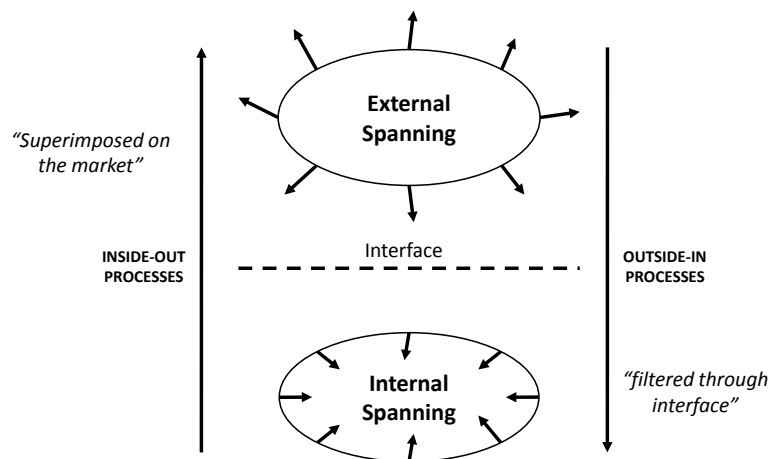


Figure 4.3-1 - Boundary Interfaces

The classic literature on product management establishes at a conceptual level the boundary spanning nature of this activity within the firm. Product management as an organizational concept involves all of the activities related to the successful creation, marketing and ultimately phase-out of a product or product line (Roach 2011a). This horizontal approach to management is boundary spanning in nature, since it bridges the external boundaries of the firm in search of relevant information, while simultaneously cutting across functional specialties in an effort to integrate this information into the

organization. Much of the product management literature either explicitly or implicitly addresses these spanning activities (Lysonski 1985, Wood and Tandon 1994, Lysonski and Woodside 1989, Lysonski *et al.* 1988). Although there is no fully explicated theory of organization boundary spanning, many authors have linked elements of this concept to theories of the firm (Day 1994, Tushman and Scanlan 1981a, Aldrich and Herker 1977, Marrone *et al.* 2007, Stock 2006, Singh 1998). These authors thus provide a bridge between the resource based view of the firm, boundary theory and product management spanning activity of the firm.

Next a product management model is proposed, which links market orientation, innovativeness and product management capability to firm performance. These constructs are reviewed and hypotheses proposed for testing.

4.4. HYPOTHESIS DEVELOPMENT

4.4.1. MARKET ORIENTATION

Three conceptualizations of market orientation dominate the literature (Langerak 2003) stemming from the early work of Narver and Slater (1990), Jaworski and Kohli (1993) and Despondé *et al.* (1993), who all developed valid measures of the construct. These concepts have established the wide acceptability in academia of marketing orientation as central to the modern study of marketing.

What then is the relationship between the resourced based view and market orientation? According to Menguc and Auh (2008, pg. 455) firm capability refers to the “ability, competency, or efficacy to deploy, implement, or execute resources for a firm’s advantage”. From their perspective deployment occurs at the point that resources are put into action and it is the degree to which these resources are managed that contributes to marketplace positional advantage and superior firm performance (Day and Wensley 1988). These capabilities are the source of value creation and competitive advantage. Thus the resource based view considers market orientation an inimitable and unique firm

capability, that is a valuable, rare and socially complex resource available to the firm (Day 1994, Menguc and Seigyoung 2006, Hunt and Morgan 1995).

Narver and Slater (1990) conceptualized market orientation as culture, where culture drives the strategies and behaviors of the organization and ultimately its performance. They believe that market oriented firms are customer and competitor oriented and adept at inter-functional coordination. In their view, customer and competitor orientation involves gathering and disseminating external information throughout the firm, while inter-functional coordination speaks to the coordinated efforts to manage firm resources to create customer value (Narver and Slater 1990). Although they do not directly include innovation in their construct, continuous innovation is implicit within each of their components (Verhees and Meulenber 2004). Their research resulted in a widely used 15-item factor-weighted scale (Langerak 2003).

Kohli and Jaworski (1990) take a complimentary approach, conceptualizing market orientation as behaviors of the organization. They assert that market orientation is rooted in the activities and processes of the firm who gather information on customers and competitors, then disseminate this information across a responsive organization. They introduce market intelligence rather than customer focus as their central premise (Verhees and Meulenber 2004) and suggest that the market orientation - performance relationship may be moderated by environmental conditions including market turbulence and competitive intensity. In their view, market orientation is essentially captured in the conduct of the firm and these behaviors provide concrete evidence of a firm's level of market orientation. The underlying presumption is that the more a firm engages in these behaviors, the more market oriented the organization becomes. They established their 20-item MARKOR scale as a measurement instrument irrespective of environmental conditions (Jaworski and Kohli 1993, Kohli *et al.* 1993).

Subsequently Deshpandé *et al.* (1993) sought to expand the understanding of customer orientation by relating it to organizational innovation, creating the first empirical work investigating innovation and customer orientation (Hurley and Hult 1998). They focused on customer orientation as an aspect of corporate culture seeing it as a "set of beliefs that

puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers and employees" (Deshpandé *et al.* 1993; pg. 27). Their 9-point customer orientation scale was developed based on extensive interviews and review of the literature including Narver and Slater (1990) and Jaworski and Kohli (1990). They conclude that customer oriented, innovative firms do perform better (Deshpandé *et al.* 1993). Later, Deshpandé and Farley (1998) undertook an assessment of these three most widely used measures of market orientation, finding that these scales were reliable, valid and interchangeable in practice. Their work resulted in an aggregate 10-item MORTN scale, which they proposed as a more parsimonious measure of the market orientation construct. This scale has been used extensively in subsequently studies; most recently as the measure of responsive market orientation (Narver *et al.* 2004, Baker and Sinkula 2009).

After decades of empirical research, market orientation has consistently shown a significant main effect on firm performance (Narver and Slater 1990, Jaworski and Kohli 1993, Deshpandé *et al.* 1993, Pelham 1999, Greenley 1995) and has been widely supported by several meta studies (Kirca *et al.* 2005, Rodriguez *et al.* 2004). Rodriguez, *et al.* (2004) in their meta analysis found that the relationship between market orientation and business performance accounts for about 12% of the effect, but that it is positive and consistent world-wide. This relationship is also supported in the SME literature (Pelham 1997, Gray *et al.* 1998, Verhees and Meulenber 2004, Pelham 2000), however its wide applicability to small and medium size firms is still debated.

Thus, for the purposes of model development, Deshpandé and Farley's (1998) 10-item MORTN scale is proposed, since it captures both the cultural and behavioural components of the market orientation construct in one parsimonious scale. It also is the scale that is least susceptible to large organization bias, since most of the measures are generic in nature (i.e. can be interpreted similarly for small, medium and large organizations). Therefore, in an effort to establish market orientation's affect on firm performance, the following hypothesis is proposed:

H₁ – Market Orientation (MO) positively affects firm performance

4.4.2. INNOVATIVENESS

The empirical relationship between market orientation and innovation continues to remain somewhat fragmented, contrary and inconclusive (Lukas and Ferrell 2000). Innovation is a multi-dimensional phenomenon, with researchers using different concepts to analyze the impact of innovation on performance (Rosenbusch *et al.* 2010). There are several reasons for this. First, numerous labels have been used to describe innovation orientation throughout the literature, including such things as product orientation and technological orientation (Grinstein 2008, Garcia and Calantone 2002), new ideas, products, services, processes and quality (Han *et al.* 1998). Second, it is still unclear as to how market orientation affects innovation; whether it enhances (Deshpandé *et al.* 1993) or impedes innovation (Lukas and Ferrell 2000). For instance, some suggest that firms displaying strong market orientation are more likely to develop innovations that are compatible with current market needs versus future needs (Atuahene-Gima 1996). Third, there is significant debate as to whether market orientation, with its implied customer closeness, leads to incremental innovations driven by expressed customer needs (Lukas and Ferrell 2000, Baker and Sinkula 2009) rather than proactively uncovering latent needs (Narver *et al.* 2004). Depending on the type of innovation desired (incremental versus breakthrough), market orientation may affect innovation positively or negatively depending on the innovation and performance measures used (Atuahene-Gima 1996) and their time frame.

To get a better understanding of innovation in the context of the firm, the distinction must be made between product innovation and firm innovativeness (Garcia and Calantone 2002). The product innovation stream tends to investigate innovation processes within the firm in an effort to determine the relationship between innovation functions and selected outcomes (Atuahene-Gima 1996, Langerak *et al.* 2007, Lukas and Ferrell 2000). On the other hand, the firm-level innovativeness stream (not to be confused with the product innovativeness stream) (Garcia and Calantone 2002) tends to favour the cultural aspects of the firm in an effort to quantify innovation behaviors and relate these to firm performance. Innovativeness conceptualizes the firm's openness to new ideas and

concepts and the degree to which their products are new-to-the-world (Hurley and Hult 1998, Deshpandé *et al.* 1993). Firm innovativeness is defined as “the firm’s capacity to engage in innovation such as introducing new processes, products or ideas in the organization” (Hult *et al.* 2004; pg. 429). It is the organizational capacity to innovate, and involves the generation, acceptance and implementation of new ideas, processes, products or services (Calantone *et al.* 2002). The link between firm innovativeness and performance remains insufficiently tested (Calantone *et al.* 2002).

Many researchers have investigated the relationship between firm innovativeness and market orientation. Most consider market orientation is an antecedent of innovativeness in the complex relationship that leads to value creation and firm performance (Paladino 2007, Atuahene-Gima 1996, Hult *et al.* 2004, Deshpandé and Farley 2004). Hult *et al.* (2004, pg. 437) conclude that “innovativeness in particular appears to be a key mediator in the web of relationships among constructs”, confirming innovativeness as an important determinant of performance. Han *et al.* (1998) investigating the mediating effect of innovation on performance, believe it to be one of the overlooked mechanisms for converting market oriented behavior into enhanced performance. Kirca *et al.* (2005) found that the mediating effect of innovativeness (defined as creation of new products to satisfy customer needs) affects customer loyalty and perceived quality, having a resultant effect on performance Paladino (2007, 2008) investigating the drivers of innovation and new product success, confirm innovativeness as a mediator between market orientation and performance, seeing innovation as the firm’s ability to adopt new ideas, products, and processes. Thus, the underlying market oriented culture and behavior of the organization does not directly affect organizational performance, but instead influences subsequent organizational action whether it be innovativeness (Menguc and Seigyoung 2006), innovation (Han *et al.* 1998) or organizational responsiveness (Hult *et al.* 2005).

Deshpandé and Farley (2004) conclude from their research study, spanning a decade and a dozen countries, that market orientation and innovativeness have a consistent positive impact on performance irrespective of industry type. Market orientation “has a strong direct impact on the performance of innovations, but its effects on market success is insignificant when mediated by innovation characteristics” (Atuahene-Gima 1996; pg.

100). They recommend that future research control for mediating variables, and go as far as suggesting that the mediating effects of innovation may involve complete mediation, rather than partial mediation.

Hence, there is significant evidence that innovativeness positively mediates the market orientation-firm performance relationship (Paladino 2007, Olavarrieta and Friedmann 2008), but there is still much to learn about the interaction between market orientation, innovativeness and firm performance. Given that little is still known about the drivers of innovativeness and how they influence performance (Hult *et al.* 2004), the proposed model offers an opportunity to investigate these drivers of firm performance. As such, innovativeness is measured using the firm-level scale recently adopted by Paladino (2007, 2008) based on Gatignon and Xureb (1997). This scale was chosen based on its firm-level orientation; a construct which other authors have measured using various instruments (Deshpandé *et al.* 1993, Calantone *et al.* 2002, Gatignon and Xuereb 1997, Keskin 2006). Thus we would expect that:

H₂: Innovativeness positively mediates the market orientation firm performance relationship

4.4.3. PRODUCT MANAGEMENT

Product management (not to be confused with product development, project management or product marketing) had its beginnings in the 1930s, when Procter and Gamble (P&G) first implemented the role within its divisions as a separate business function (Eckles and Novotny 1984, Lysonski 1985, Wood and Tandon 1994). This role was delegated to an individual who was entirely responsible for the development, production and marketing of a particular product line, integrating all of the functions required for its successful creation and marketing. The success of this integrated “concept through to purchase” system led to the wide adaptation of the P&G model by many companies, large and small until the 1970s when multifunctional teams began to replace individual product managers (Katsanis *et al.* 1996). In this new era, teams became responsible for the entire product life cycle from development through to the management of launch and post-launch activities. This multifunctional model was implemented to reduce a perceived

overemphasis on internal activities leading to product myopia (Wood and Tandon 1994), while improving the firm's market orientation by getting closer customers and channel partners. It also had the unintended effect of dispersing product responsibility throughout the organization, while concentrating activities into a number of specialized designations, which came to include such positions as brand manager, category manager and technical product manager.

According to Katsanis (2006) in its most simplistic form, the role of product management focuses on developing, implementing and monitoring product marketing plans. This is however not to be confused with the marketing function of the firm, since product management is a boundary spanning system-wide function (Lyonski 1985, Wood and Tandon 1994, Lyonski and Woodside 1989, Katsanis and Pitta 1995, McDaniel and Gray 1980, Lyonski *et al.* 1988), that like market orientation "reach(es) beyond the scope of the marketing department alone" (Han *et al.* 1998; pg. 34). Several issues however, arise within the literature, which need to be explored in order to fully understand the role of product management within the business enterprise.

Wood and Tandon (1994) distinguish between obtaining information and disseminating information, both internally and externally. This process allows the organization to "absorb uncertainty" and facilitate the firm's adaptation to changing environments. The product manager as described by Lyonski (1985) performs this role and is the central transmitter of information about the product within the firm and between the company and its environment. This role thus performs two functions, one as a filter (i.e. drawing inferences from information and presenting a homogeneous interpretation) and the other as a facilitator (i.e. presenting meaningful information for decision making) (Wood and Tandon 1994). Paradoxically, it seems that product managers spend most of their time and resources on internal boundary spanning activities, even though external activities are deemed to be more critical to the firm's ability to adapt to turbulent environments (Gorchels 2005).

Thus, boundary spanning is at the core of product management and this activity is both external and internal in nature. This leads to investigating product management as a set

of boundary spanning firm capabilities, which must be performed in order to gain (and maintain) positional advantage and enhance firm performance. Building upon this conceptualization, product management is investigated based on its well documented external and internal boundary spanning activities.

4.4.3.1. EXTERNAL PRODUCT MANAGEMENT

Some examples of external product management boundary spanning activities include responsibility for market sensing, category attractiveness, competitor and customer needs analysis, profitability and forecasting (Dominguez 1971, Lehmann and Winer 2005). In industrial firms, external spanning activities can include communicating with sales representatives, distributors, suppliers and buyers. These external activities are complex as they often involve product buying process complexity, functional and buyer/seller interdependence (Coviello and Brodie 2001). Other tasks include responsibility for customer learning, competitive intelligence and directing and implementing marketing strategies (Lysonski and Woodside 1989). In small and medium size enterprises some of these external product management activities consistently distinguished high growth firms from others (Smallbone *et al.* 1995).

Expanding on Day (1994), several of these externally emphasized activities include market sensing, customer linking, channel bonding and technology monitoring. He defines several externally oriented spanning activities such as product strategy, pricing and new product development. Thus, although direct measurement of external spanning capability is difficult, the activities which underpin this construct can be measured. As a result, earlier work by Roach (2011b), establishing external product management activities involving channel analysis and support (i.e. channel bonding) is used as a measure of external product management spanning capability for this investigation (Roach 2011b). Thus,

H₃ – External product management spanning positively mediates the market orientation – firm performance relationship

4.4.3.2. INTERNAL PRODUCT MANAGEMENT

Much has been written about cross-functional coordination, specifically within product development teams (Sherman *et al.* 2005, McDonough III 2000). Various labels have been used to describe this cross-functional cooperation including collaboration, teamwork, interaction, communication and integration (McDonough III 2000). Hence teams are increasingly responsible for cross-functional tasks, bridging organizations and transferring valuable knowledge and know-how (Marrone *et al.* 2007), with some authors going so far as to interpret the different functional backgrounds of team members as boundaries within the team (Stock 2006). Thus “there appears to be a consensus that organizational integration across functional and disciplinary specialties drives superior firm capabilities” (Hsu *et al.* 2007; pg. 1133).

This functional spanning has been described as a multidimensional process comprised of collaboration and interaction (Kahn 1996, Kahn 2001) or team centered activities directed towards value creation (Nakata and Im 2010). Several researchers have developed measurement scales, which include such activities as level of contact, information flow and involvement in problem definition (Sherman *et al.* 2005, Kahn 1996, Souder and Song 1997, Kahn 2001). Inter-functional coordination also has a historic relationship with market orientation dating back to Narver and Slater (1990) who break-out this construct as one of their three factors of market orientation. Under their definition, cross-functional integration refers to the communication and coordination of business functions to enhance customer value.

From a product management perspective we know that new product performance is stronger when cross-functional coordination is present rather than merely information flow between the functions (Sherman *et al.* 2005, Kahn 1996, Kahn 2001). However the effectiveness of this process can vary considerably between organizations or units (Sherman *et al.* 2005). Thus, although this multi-functional approach remains highly popular, it possesses a number of disadvantages. Specifically, no one person can be completely held responsible for the success or failure of products, leading to decentralization of responsibility and lack of ability to quickly detect problems. Also,

while coordination between functions was initially viewed as a blessing of the product management system, it eventually became the focal point of controversy, since the discrepancy between authority and responsibility was considered a fundamental flaw.

The fundamental difference between cross-functional coordination and boundary spanning is that the former measures coordination of resources and information, while the latter measures the level of horizontal integration based on involvement, communication and participation. Some break integration into two dimensions, namely interaction and collaboration. The former is characterized by formal information flows and meetings, while the latter refers to the ability to collectively working towards a common goal (Kahn 1996, Kahn 2001). Either way, this level of involvement speaks to the degree of spanning (or the spanning roles) of the individuals involved in the process. Boundary spanning is critical to team performance, with teams depending on members to perform boundary spanning activities such as seeking, interpreting and communicating external information within the team to meet objectives (Marrone *et al.* 2007). These are distinct from tacit team processes normally attributed to cross-functional coordination such as work coordination, goal setting and management of conflict.

Since the cross-functional integration of technical and marketing activities represents a necessary, but not sufficient condition for high levels of performance (Sherman *et al.* 2005) it is plausible that the combined effects of external product management spanning could interact with internal spanning activities in an attenuation effect. External information is processed and simplified by external spanning, which is then examined and scrutinized by internal spanners for decision making. Thus a situation is created where external product management spanning is moderated by the internal spanning capability, which should ultimately be reflected in firm performance. Consequently, the moderating effect of internal product management on the external product management – firm performance relationship is such that:

H₄ – Internal product management spanning moderates the external product management spanning – firm performance relationship

Internal product management capability is measured based marketing and technical integration (Roach 2011b).

4.4.4. PERFORMANCE MEASUREMENT

The predominant dependent variable of interest in the strategic management literature is performance (Wolff and Pett 2006). Rosenbusch *et al.* (2010) in their meta-analysis of SME innovation conclude that there is no consensus as to how to measure firm performance in empirical research and that the wide variety of measures are used; usually without justification. They break their performance criteria into three dimensions including accounting returns (e.g. profitability), growth and stock market performance. They include both objective and subjective measures in their analysis and found that there was no significant difference between profitability, growth or stock market performance measures (Rosenbusch *et al.* 2010).

Subjective global performance measures have been extensively used in SME research driven largely by the fact that SMEs are usually privately held firms, who are often reluctant to provide objective financial performance information (Wolff and Pett 2006). Several researchers also believe that single objective measures of performance cannot adequately provide a valid measure of performance (Pelham 1997, Pelham 2000, Rodriguez *et al.* 2004, Olson *et al.* 2005). Olson, Slater and Hult (2005) reinforce this view by pointing to a strong correlation between objective performance data and subjective assessments of performance by key informants.

Due to the personalized management of small and medium-sized businesses, both qualitative and financial criteria should be considered when attempting to measure the performance and success of privately owned SMEs (Jennings and Beaver 1997). Pelham (1997) states that using only single financial measures of profitability (e.g. ROI, ROA) cannot discriminate excellent companies from others. The use of multiple measures of performance is important in recognizing the multidimensional nature of SME firm performance (Pelham 1999). There also appears to be a relationship between market orientation and subjective measures of performance, which tends to yield higher market orientation - performance correlations (Pelham 1997, Rodriguez *et al.* 2004).

Thus, multiple subjective measures of global performance are used to test the model (see table 4.5-1). These measures reflect profitability, growth and performance.

4.5. METHODOLOGY

4.5.1. SAMPLE SIZE AND CHARACTERISTICS

The model was tested on a sample of Canadian small and medium-sized enterprises (SMEs) engaged in the manufacturing sector. The target sectors were predominantly from the North American Industry Classification System (NAICS), categories 31, 32, 33, which represented 76.1% of the sample. The remaining were from the legacy Standard Industrial Classification (SIC) codes in various manufacturing categories. For the purpose of this study, SMEs were defined as having greater than 5 employees and less than 250 employees, based on self reporting. No other firm size data were collected, but secondary data based on the number of employees was extracted. This secondary data established the firm size by employees as a mean of 56.7 with a median of 35 employees. Since there is no way to verify the accuracy of this data, it is used for general reference purposes, but was not used as a control in this investigation.

The SME population was identified through the use of two prominent databases (a) Industry Canada's Canadian Company Capabilities (CCC) database and (b) the Canadian Business Directory (CBD). The former is a self-reported, on-line database where Canadian companies share their corporate information, including firm size, limited performance data, and key market information. The latter (CBD) is a commercially available database. Records were also restricted to those businesses for which named contacts or officers were listed and for whom telephone numbers and e-mail addresses were included. A number of methods were employed to detect common business records between the two datasets. Near matches were examined on an individual basis, such as subtle differences in spelling between the two systems.

The method of data collection was a self-reported on-line survey answered by senior company key informants in May 2009. Key informants were defined as senior managers

of SMEs (e.g. General Managers through to CEOs). Participants were asked to provide their opinion on a number of generic statements related to product management and firm performance. Questions were randomized using a 7-point Likert scale from “disagree completely” to “agree completely” based on how their firm has performed in the past, not how it hoped to perform in the future. Lastly, participants were asked briefly about their experience in their industry, their company and what best described their management position within their organization.

This method resulted in a 367 good responses of which 51 were deselected, since they self reported that they had less than 5 employees or greater than 250 employees. This left a useable sample of n=316, which translates into a response rate of 3.81% of the total population (N=8295). Of the respondents 219 (69.3%) were Chief Officers, Presidents or Vice Presidents of their companies. When senior managers were included this increased to 294 (93.1%) of respondents. Of these respondents 228 (72.2%) had greater than 15 years experience in their industry, while 183 (58.0%) had greater than 20 years experience.

4.5.2. MEASUREMENT OF CONSTRUCTS

The measures used in the analyses are listed in Table 4.5.3.1-2. This details individual items, with their respective reliability estimates (Cronbach’s alpha, composite reliability), and average variance extracted (AVE). In line with the research focus, the measures assess the respondents’ perceptions about their firm’s behavior and overall performance.

The significance of indicator loadings was generated using a bootstrap algorithm. In PLS-SEM, bootstrap samples are built by re-sampling with replacement from the original sample. This procedure produces samples consisting of the same number of units as in the original sample. The number of re-samples was 500, which is above the suggested lower limit of 200, considered to lead to reasonable standard error estimates (Tenenhaus *et al.* 2005).

Table 4.5.2 - Constructs and measurement items	Factor Loading	t-Value
External Product Management (Adopted from Roach 2011b)		
We have strong systems for deciding which products and/or service opportunities to pursue or which to phase-out	0.706	20.94
We have well established systems for forecasting and monitoring product and/or service unit sales	0.752	27.76
Our product and/or service pricing (i.e. base price, discount schedules, etc.) is determined via careful analysis and feedback from the marketplace	0.686	14.88
Our sales force or sales partners consistently receive up to date product and/or service support (e.g. training, technical support, demonstrations and presentations)	0.737	25.79
Sales data is consistently analyzed and measured against marketing programs and forecasts	0.768	28.25
Internal Product Management (Adopted from Roach 2011b)		
We have well established systems for involving business, marketing and technical personnel in our product and/or service efforts	0.825	39.68
Marketing and technical personnel communicate effectively and work well together when it comes to product and/or service issues	0.819	31.54
Marketing and technical personnel participate equally in developing new product and/or service concepts	0.828	33.86
Innovativeness (Adapted from Paladino 2007/2008 based on Gatignon and Xureb 1997)		
The quality of our new products or services is superior to that of our competitors	0.804	27.54
Our product or service design (in terms of functionality and features) is superior compared with our competitors	0.780	28.18
Overall, we have an advantage over our competitors in terms of the superior product or service we offer our customers	0.831	34.04
Our new products or services are minor improvements in current technology	< .600*	n/a
Our new products or services incorporate a large new body of technological knowledge	0.623	11.94
Overall, our new products or services are similar to our main competitors' products or services	< .600*	n/a
The applications of our new products or services are totally different from the applications of our main competitors' products or services	< .600*	n/a
Our products and/or services are mainly driven by technical superiority ^a	0.711	17.99
Market Orientation (Adopted from Deshpandé and Farley 1998)		
Our business objectives are driven primarily by customer satisfaction	< .600*	n/a
We constantly monitor our level of commitment and orientation to serving customer needs.	0.806	35.72
We freely communicate information about our successful and unsuccessful customer experiences across all business functions.	< .600*	n/a
Our strategy for competitive advantage is based on our understanding of customers needs	< .600*	n/a
We measure customer satisfaction systematically and frequently	0.834	41.66
We have routine or regular measures of customer service	0.780	26.32
We are more customer-focused than our competitors	0.619	12.87
I believe this business exists primarily to serve customers	< .600*	n/a
We poll end users at least once a year to assess the quality of our products and services	0.648	15.63
Data on customer satisfaction are disseminated at all levels of the organization on regular basis.	0.723	20.01

Performance

Over the past year, our sales growth was _____ when compared to our competitors	0.835	35.90
Over the past year, our profit growth was _____ when compared to our competitors	0.868	51.73
Over the past year, our employment growth was _____ when compared to our competitors	0.715	18.92
Over the past year, the overall performance of the business met expectations	0.779	29.67
Over the past year, the overall performance of the business exceeded that of our major competitors	0.808	35.44
Over the past year, top management was very satisfied with the overall performance of the business	0.787	28.81

* denotes indicator variables dropped do to loadings below 0.60 on their respective constructs

^a this indicator was substituted for a low loading reverse indicator related to technical competence

Measures of market orientation were based on Deshpandé and Farley's (1998) 10-item MORTN scale, while firm-level innovativeness was measured using a 7-item scale from Paladino (2007) adapted from Gatignon and Xureb (1997). External and internal product management capability constructs are based on previous work by Roach (2011b), where constructs were found to be distinct from market orientation. This established valid and reliable measures consistent with the conceptualization of these constructs (Roach 2011b).

4.5.3. ANALYSIS

A partial least squares (PLS) structural equation modeling (SEM) technique was employed to analyze the data, using Smart PLS (version 2.0.M3). This PLS-SEM is a second generation multivariate technique that assesses the psychometric properties of the outer (or measurement) model, while simultaneously estimating the parameters of the inner (or structural) model (Al-Gahtani *et al.* 2007). PLS based SEM modelling appears to be gaining wider acceptance in management research (Hsu *et al.* 2007, Brettel *et al.* 2007), since it provides certain advantages over covariance-based SEM analysis.

Generally, it tends to be more effective for smaller sample sizes, is not as demanding on measurement scales and is less constrained by the assumption of normality. The PLS approach maximizes the explained variance (R^2) of the endogenous (dependent) variables and is thus good for theory development, where the phenomenon to be investigated is relatively new. Covariance based methods have limitations in establishing causal directions, with researchers having to assume causal relationships prior to data analysis

(Sun and Zhang 2008). Thus PLS-SEM is good where low theoretical information is available and unlike covariance based structural models, does not depend on goodness of fit measures to establish whether the data fits the model. As such, PLS models take into account measurement error through simultaneous regressions as an indication of model robustness using the significance of the path and the explained variance (R^2) of the model (Hulland 1999) to explain the relationships between constructs under consideration.

Thus the methodology as recommended by Götz *et al.* (2010) is employed. This involves a two-tiered approach for model testing, first examining the measurement model's quality, followed by an assessment of how well the structural model reproduces the real data structure.

4.5.3.1. MEASUREMENT MODEL

Measurement of the outer model, specifies the relationship between observed indicator variables and their underlying constructs. This process involves the assessment of indicator, construct, convergent and discriminant validities.

Indicator reliability specifies which portion of the indicator's variance is explained by the related latent variable. A generally accepted metric is that fifty percent (50%) of an indicator's variance should be explained by the latent construct. This manifests itself into an indicator loading of greater than 0.70 (Fornell and Larcker 1981), indicating that the shared variance between an indicator and its construct is larger than the measurement error (Götz *et al.* 2010). Thus for reflective indicators, it is recommended that initially indicator loadings of less than 0.40 be eliminated from PLS measurement models (Götz *et al.* 2010, Hulland 1999). In the proposed model, two innovativeness indicators (IOGen4 and IOGen6) fell below this threshold and thus were removed. Both indicators were part of a larger seventy-eight question survey and were the only reverse statements in the entire questionnaire, leading to potential scale bias. These innovation indicators recently used by Paladino (2007, 2008), where also among the lowest loading indicators in her study. Upon review, one product management indicator (PM 29) was found to load on the innovativeness construct and was consequently substituted for the reverse

indicator IOGen4, since both reflective indicators measured technical superiority. Thus the innovativeness construct is characterized by the five indicators as outlined in table 4.5.3.1-1 (see bolded indicator loadings). For the market orientation construct on the other hand, indicators exceeded the 0.40 threshold, but several were below the rule of thumb of 0.70. Following precedence in recent research for the removal of low loading market orientation indicators to increase model goodness of fit (Narver *et al.* 2004, Pelham 2000), low loading indicators were systematically removed until indicator's variance explained by the latent construct exceeded 0.50. The removed indicators included MORes1, 3, 4 and 8, all of which loaded below or near 0.60. The remaining indicators all loaded above 0.60 as outlined in bold type in Table 4.5.3.1-1 below.

Table 4.5.3.1-1 - Factor Loadings (bolded) and cross loadings

Indicator	MO	Innovativeness	External PM	Internal PM	PERF
MORes2	0.806	0.304	0.543	0.459	0.206
MORes5	0.834	0.259	0.563	0.374	0.231
MORes6	0.780	0.211	0.580	0.319	0.151
MORes7	0.620	0.407	0.362	0.328	0.301
MORes9	0.648	0.269	0.362	0.332	0.179
MORes10	0.723	0.299	0.392	0.393	0.104
IOGen1	0.291	0.803	0.234	0.363	0.242
IOGen2	0.316	0.792	0.229	0.281	0.265
IOGen3	0.354	0.839	0.266	0.347	0.292
IOGen5	0.250	0.612	0.248	0.294	0.136
PM29	0.255	0.698	0.203	0.330	0.215
PM1	0.471	0.301	0.704	0.388	0.219
PM19	0.486	0.154	0.755	0.488	0.292
PM3	0.436	0.224	0.686	0.384	0.214
PM5	0.479	0.287	0.736	0.461	0.344
PM6	0.466	0.174	0.770	0.440	0.249
PM21	0.487	0.331	0.597	0.834	0.302
PM22	0.364	0.355	0.421	0.817	0.290
PM23	0.366	0.374	0.423	0.820	0.231
PERF1	0.197	0.243	0.333	0.257	0.835
PERF2	0.212	0.262	0.333	0.328	0.868
PERF3	0.205	0.227	0.252	0.235	0.715
PERF4	0.154	0.217	0.217	0.208	0.779
PERF5	0.265	0.317	0.334	0.287	0.808
PERF6	0.233	0.218	0.248	0.278	0.787

Measures of *construct reliability* reflect how well a construct is measured by their assigned indicators (Götz *et al.* 2010). Standard measures of reliability include both composite reliability and Crochbach's alpha as presented in Table 4.5.3.1-2. Composite reliability values of greater than 0.6 are considered desirable for exploratory research

(Bagozzi and Yi 1988) however 0.70 is often considered as the threshold of reflective construct reliability (Fornell and Larcker 1981). Similarly, the generally agreed upon lower limit considered suitable for Crochbach’s alpha is 0.70 (Hair *et al.* 2006; p. 137, Nunnally and Bernstein 1994). For the proposed model, all reliability measures easily exceeded these recommend thresholds, indicating strong correlation and establishing them as reliable measures of their respective latent constructs.

Table 4.5.3.1-2 - Measurement model assessment

Latent Variable	AVE	Composite Reliability	Cronbach’s Alpha	MO	External PM	Internal PM	Innovativeness	PERF
MO	0.547	0.877	0.831	0.739	-	-	-	-
External PM	0.534	0.851	0.781	0.641	0.730	-	-	-
Internal PM	0.679	0.864	0.766	0.498	0.592	0.824	-	-
Innovativeness	0.568	0.867	0.807	0.391	0.311	0.429	0.754	-
PERF	0.640	0.914	0.887	0.266	0.365	0.335	0.311	0.800

Convergent validity is commonly examined using the “average variance extracted” (AVE). It represents the indicator variance including measurement error captured by the construct, relative to the total variance (Götz *et al.* 2010). Values greater than 0.5 indicate more indicator variance than variance due to error (Fornell and Larcker 1981). Average variance extracted (AVE) exceeded 0.50 for all constructs. Indicator loadings and cross loadings were also examined (see table 4.5.3.1-2), establishing that all items loaded well on their respective constructs and that even for indicators loading below 0.70, no noteworthy cross loadings are indicated (Yoo and Alavi 2001). Indicators loaded with high significance ($p > .001$) on their respective constructs based on the t-statistics of the outer model, which ranged from 11.94 to 51.73, confirming convergent validity. Thus, it can be inferred that the models’ constructs differ significantly from one another.

Discriminant validity evaluates the dissimilarity between the measurement tool’s ability to measure different constructs (Götz *et al.* 2010), with the shared variance between the latent constructs’ indicators being larger than the variance shared with other latent variables (Hulland 1999). The average variance extracted (AVE) measures the variance captured relative to the measurement error and should be larger than the common variance (squared correlations) relative to any other of the model’s constructs in order to support discriminant validity (Fornell and Larcker 1981). The Fornell-Larcker criterion requires that a latent variable share more variance with its assigned indicators than with

any other latent variable. Under this scenario a cross-correlation matrix is constructed in which the square root of the AVE is compared to (e.g. should be greater than) the correlations between the latent variable and all other latent variable constructs. Table 4.5.3.1-2 indicates that the square root of the AVEs (e.g. elements bolded in the diagonals) are in all cases greater than the off-diagonal row and column elements, supporting the discriminant validity of the scales used.

4.5.3.2. STRUCTURAL MODEL

The following diagram (figure 4.5-1) represents the model and the structural relationship between the latent constructs.

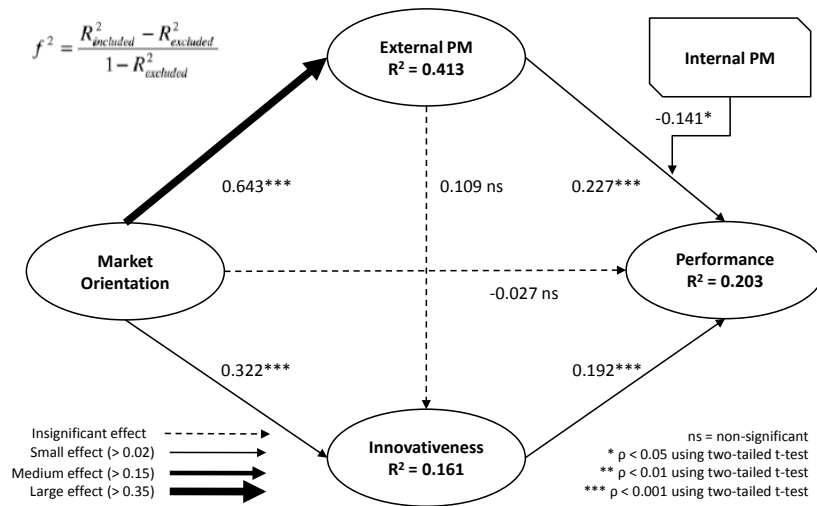


Figure 4.5-1 - Fully saturated model with beta loadings and effect sizes

In this model, both external product management and innovativeness are shown to mediate the market orientation – firm performance relationship. For each path, beta loadings and their associated significance are outlined in figure 4.5-1. Since partial least squares models predict variance, R² values are included within each endogenous latent construct. All significant path coefficients are positive, indicating that their theoretical direction is correct, thus establishing nomological validity of the model.

Mediation effects are next examined. Mediation and indirect effects are not synonymous, where the latter is a necessary but not sufficient cause of mediation. One of the benefits of PLS based SEM is that it lends itself to examining indirect effects allowing for a more complex investigation of nomological network of effects. Baron and Kenny (1986) state that in order to show mediation, four things must be present. First, there is a need to demonstrate a direct effect of the independent variable (IV) on dependent variable (DV), such that the effect is non-zero (see figure 4.5-2). Secondly, when a potential mediating variable (MV) is introduced, there is a direct effect between the IV and the MV. Third, that there is a non-zero path coefficient between variable the MV and the DV, while controlling for the direct effect of the IV on the DV. The fourth step is optional and can determine whether there is full or partial mediation. Partial mediation occurs when the direct effect is diminished in the presence of the mediator, while full mediation occurs when this relationship is at (or near) zero. These criteria can be used to informally judge whether or not mediation is present.

As a further test some authors suggest using statistical methods by which mediation may be formally assessed (Baron and Kenny 1986). As recommended by Baron and Kenny (1986) the Aroian version of the Sobel test can be used for this purpose (see figure 4.5-2).

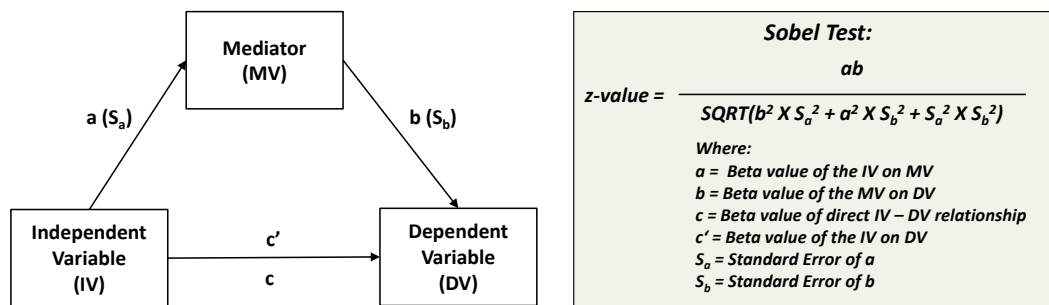


Figure 4.5-2 - Mediation Diagram

This test suggests that the z-value should be greater than 1.96 (p>0.05) and that the mediating effect is non-zero. For the model as outlined in figure 4.5-2, the mediating relationships are as follows:

MO-PERF relationship is mediated by innovativeness

MO-PERF relationship is mediated by external PM

MO-innovativeness is mediated by external PM

The mediation effects are tested using both Baron and Kenny (1986) and the Aroian version of the Sobel test. Table 4.5.3.2 outlines the results of these mediation tests, based on the mediation diagram - figure 4.5-2 as follows:

Table 4.5.3.2 - Results of Mediation tests

Baron and Kenny (1986)						Sobel Test						
IV	DV	MV	IV-DV Beta(c)	IV-MV Beta(a)	MV-DV Beta	a	b	c'	Sa	Sb	z	Mediation
MO	PERF	EPM	0.296	0.647	0.372	0.647	0.336	0.046ns	0.038	0.081	4.02	Full
MO	PERF	IO	0.296	0.416	0.317	0.416	0.237	0.187 ^a	0.047	0.058	3.71	Partial
MO	IO	EPM	0.313	0.644	0.117	0.644	0.117ns	0.313	0.038	0.081	1.44	none

*All relationships significant at the $p < 0.001$ level unless otherwise noted
a - significant at the $p < 0.01$ level; ns - non-significant relationship*

Lastly, to evaluate predictive power of the model, the impact of individual constructs must be determined using the explained variance (R^2) of dependent variables. This is accomplished by comparing the R^2 of the dependent variable with and without the presence of each independent variable (Chin 1998). Effect sizes are generally considered high (>0.35), medium (>0.15) and small (>0.02) based on Cohen's (1988) operational definition for multiple regression effect sizes. Figure 4.5-2 illustrates the dominant paths via their effect sizes, which explain the most variance within the research model. As can be readily observed, the dominant path emanates from market orientation flowing first through external product management (EPM) to firm performance. This path is moderated by internal product management (IPM), in a case of moderated mediation. The secondary path flows through innovativeness which mediates the market orientation – performance relationship.

The explained variance of the model (i.e. R^2 of Performance) is predicted through the moderated mediation effect of external product management on performance, which accounts for 17.5% of the variance. The inclusion of the partial mediating effect of innovativeness increases the predictability of the model to 20.3%, an increase of 2.8%.

4.5.4. RESULTS

The results of the analysis can be broken down into main effects, mediating effects and moderating effects.

First, the main effect of market orientation on firm performance was predicted to be significant and positive based on the extant literature, which includes several meta-studies showing a consistently positive relationship between market orientation and performance (Kirca *et al.* 2005, Rodriguez *et al.* 2004). This however was not the case in this study, as the proposed model showed an insignificant relationship in the presence of mediating effects of external product management and innovativeness. There may be several plausible reasons for this including recent research which indicates that market orientation tends to decline within industries where all competitors are market orientated (Kumar *et al.* 2011), thus not providing imitability, which affords long term performance benefits. However, the main reason that market orientation did not show significance in this study has more to do with the proposed model, which incorporates external product management capability, which has a disproportional impact on firm performance. Thus the model provides no support for H₁.

Tests of mediating effects indicate that innovativeness showed a partial mediation of the market orientation firm performance relationship, supporting previous findings (Paladino 2007, Olavarrieta and Friedmann 2008). This construct behaved as expected confirming that firm-level innovativeness is the route through which market orientation affects performance. In the fully saturated model (i.e., in the presence of external product management capability - EPM), innovativeness continues to predict 2.8% of firm performance (increasing R² from 17.5% to 20.3%). Given that market orientation is fully mediated in this model, innovativeness becomes its own predictor of performance. Thus H₂ is supported.

Further review of the mediating effect of external product management (EPM), confirms that this relationship fully mediates the market orientation – performance relationship, regardless of the presence of the innovativeness. The mediating effect of innovativeness adds to the predictability of the model, but it is clear that the full mediations of EPM on

the market orientation - performance relationship is responsible for most of the predictability of the model. This is significant because the strong relationship between external product management capability and performance indicates that this construct has high predictive power. Since for the purposes of this study, external product management involves channel bonding behaviour, it would seem that the firms' ability to successfully span their external environment highly predicts performance. Since these activities are distinct from both market orientation and firm innovativeness measures, this adds to the body of knowledge on external boundary spanning. Thus, these findings indicate support for H₃.

The moderating effect of internal product management (IPM) on the external product management (EPM) – firm performance relationship is significant but negative. This finding is interesting and somewhat surprising, since it indicates that although EPM fully (and positively) mediates the market orientation – performance relationship, this mediation is attenuated by internal product management (IPM) capability. The negative relationship indicates that (while holding EPM constant) IPM has a dampening effect (Beta = -0.141) on this relationship, such that as IPM increases, it reduces the negative impact on performance. On the other hand, EPM's effect on PERF is larger (Beta = 0.227). Thus every unit of increase in EPM has 1.61 ratio affect per unit increase in IPM (i.e. $0.227/0.141=1.61$). Thus a firm may choose to increase its efficiency in EPM rather than its efficiency in IPM, since the leverage may be higher per unit resource. However, this still suggests that firms which promote internal spanning between the business, marketing and technical factions of the firm, may limit their performance even though they are adept at external product management spanning activities. Thus, these findings indicate support for H₄.

Although there is no direct hypothesis related to the mediating effect of external product management on the market orientation - innovativeness relationship, this relationship was tested in this fully saturated model and found to be non-significant. This relationship was tested merely to add parsimony to the model.

4.6. DISCUSSION

This study represents a first step toward a theory based, empirically grounded understanding of the relationship between market orientation, innovativeness and boundary spanning capabilities. It provides four significant contributions to the literature which have both academic and practical implications.

4.6.1. THEORETICAL IMPLICATIONS

First, this study adds to the body of knowledge of the resource based view of the firm and boundary theory by seeing boundary spanning as a set of firm capabilities. This is accomplished by providing empirical support for boundary spanning, through the examination of product management spanning activities and their relationship to firm performance. Several researchers have developed the concept of boundary spanning in the strategic management (Tushman and Scanlan 1981a, Srivastava *et al.* 2001, Hsu *et al.* 2007) and marketing literatures (Day 1994, Day and Wensley 1988, Hult and Ketchen 2001), however, none to the author's knowledge have empirically tied this to firm performance.

Recent research by Stock and Zacharias (2010) may indicate a renewed interest in boundary spanning, specifically as it relates to innovation orientation's relationship to the marketing literature. Arguing that knowledge of innovation orientation remains scarce, they integrate configuration theory (Ketchen *et al.* 1993, Miller 1987) and boundary theory (Aldrich and Herker 1977) to include internal arrangements, environmental uncertainty, and boundary-spanning activities as relevant dimensions of innovation orientation. Using this framework they find that different types of innovation orientation are associated with different performance outcomes. This research on the other hand, using the RBV framework defines boundary spanning in terms of external and internal product management capability. This differs from their definition which relates to customer information acquisition (Stock and Zacharias 2010). Without the RBV as their theoretical framework Stock and Zacharias (2010) are unable to extend their work to state that boundary spanning is in fact a firm capability. Other recent research investigating the firm-level determinants of product management (Tyagi and Sawhney 2010), stress the

elimination of traditional functional silos and reduction of organizational boundaries, but like Stock and Zacharias (2010) stop short of investigating product management as a firm capability. Thus, this research study is the first to specifically examine product management as boundary spanning capability.

Second, this research is the first empirical study to link aspects of external product management capability with firm performance, specifically in the presence of firm innovativeness. This corroborates the extant product management literature, which strongly suggests that external boundary spanning product management activities should positively affect firm performance (Lyonski 1985, Gorchels 2005, Lyonski and Woodside 1989, Katsanis and Pitta 1995, Murphy and Gorchels 1996, Tyagi and Sawhney 2010, Lyonski *et al.* 1988). Most of this research has been anecdotal in nature and thus only provides guidance, however this study has found a significant relationship between at least certain aspects of external product management activities. Specifically, this study conceptualizes external product management as the formal and informal firm activities which integrate channel bonding. This external spanning monitors the product in the marketplace providing feedback, which is processed into decisions by the firm for such things as product phase out, pricing, sales support and forecasting. This construct is distinct from either market orientation or innovativeness, since it measures the acquisition and processing of external information, as a result of external boundary spanning activity. Although it is distinct from market orientation it has aspects of customer, competitor, and market understanding, which must be translated through organizational processes for action within the organization. Based on this study's findings, external spanning activities positively affect performance.

This research also adds to the literature on cross-functional coordination by looking at spanning activities as the integration of functional areas, rather than merely being highly energized to communicate, collaborate and coordinate activities. This measure also differs from the market orientation definition of inter-functional coordination (Narver and Slater 1990), which effectively measures coordination activities of the firm's functional specialties. This leads to the third result of this study, namely the interaction between external and internal product management boundary activities. Much has been written on

the benefits of cross-functional integration within the product development literature (Sherman *et al.* 2005, McDonough III 2000, Kahn 1996), specifically the integration of technical and marketing functions of the firm (McDonough III 2000, Griffin and Hauser 1996). It seems that firms displaying external boundary spanning behavior do not necessarily benefit from this integrated behavior. The long held belief that cross-functional behavior should impact performance did hold true in this study; however it had an inverse relationship on performance in the presence of external spanning activities. This at first may seem counterintuitive; however upon closer examination it may shed light on aspects of the cross-functional *integration* processes within the firm. In this model, external product management spanning measures the interface activities related to channel understanding and bonding. These interface activities are filtered, processed and simplified in order to avoid organizational overload (Tushman and Scanlan 1981a). Disparate but related information on pricing, forecasts, changing competition or technological landscapes must be correctly understood by the organization, before this interface information can be processed by management into action. Internal spanning processes likely involve a consensus building approach, which is time consuming and subject to internal trade-offs (i.e. resulting in the lowest common denominator). There may also be other internal factors at play such as corporate indolence, which may dismiss (or minimize) information that is not congruent with organizational paradigms. These may combine to create a situation where as internal spanning activity increases, the ability of management to converge on an optimum decision based on external information is compromised. This inertia may lead to justifying sub-optimal decisions for the sake of organizational or team harmony.

Recent research into effects of repeat collaboration and team mental models may shed some light on this phenomenon (Skilton and Dooley 2010). Skilton and Dooley (2010) argue that repeat collaboration may inhibit teams from disturbing the status quo. Since repeat collaboration teams are likely to become more efficient at managing execution details, they tend to buy into the dominant mental model. This makes disruption or modification difficult, risky and uncomfortable for the organization, which results in a reaffirmation of the status quo to make team interaction easier (Skilton and Dooley

2010). This short circuits the creative abrasion process by breaking down of the systems of disclosure and advocacy that diverge from exiting firm mental models (Skilton and Dooley 2010, Leonard and Straus 1997). Thus, increasing internal spanning activity (i.e. stronger team integration) may dampen the effect of external spanning activities, which are shown to improve firm performance in this study.

Lastly, the market orientation - firm performance relationship is fully mediated in this model. This is partially due to the mediating effect of firm innovativeness, which suggests that market orientation's affect on the explained variance is mediated by innovativeness. For firms who are market oriented, performance is enhanced when the organization also displays a culture of innovativeness, reinforcing the partial mediation effect of innovativeness on market orientation. These results confirm much of the literature which states that market orientation is an antecedent of innovativeness, which adds to the body of knowledge into the complex relationship from value creation to firm performance highlighted by several researchers (Paladino 2007, Atuahene-Gima 1996, Hult *et al.* 2004, Deshpandé and Farley 2004, Paladino 2008). This study confirms the routes through which market orientation affects firm performance and does so using a sample of small to medium size enterprises, and area that continues to be under researched (Rosenbusch *et al.* 2010).

4.6.2. MANAGERIAL IMPLICATIONS

The most important managerial implication resulting from this study is that external spanning activities strongly influence firm performance. This is irrespective of whether the firm is market orientated or displays firm-level innovativeness. Specifically, this external spanning is related to channel understanding and bonding activities, which are manifested into such things as pricing policy, product life cycle management and channel support. In SMEs, the owner/manager is often the primary external boundary spanner and although the information which is transferred across the interface is pre-processed and perhaps even biased, it appears to drive superior performance. This study indicates that this set of spanning activities is a strong predictor of performance irrespective of the level of internal spanning or integration of functional areas. This has managerial

implications since this highlights that the stronger this set of external boundary spanning capabilities, the better the firm performs. Based on these results, management should pay particular attention to these channel bonding activities and encourage external boundary spanning roles amongst team members. They should also investigate how information is processed, codified and reduced to establish efficiencies in this process.

The next significant managerial implication is that when this information is processed internally through an internally spanning/integrated team, it diminishes the impact of external spanning, resulting in reduced firm performance. The greater the internal spanning and integration, the worse the firm performs in this study. Although cross-functional integration has many advantages and benefits (McDonough III 2000), one of its drawbacks may be its inherent disbursement of responsibility and loss of creative abrasion through a consensus building process. This process of assimilation through integration results in fewer mistakes such as errors of omission, but may not allow for difficult and more controversial decisions to be made. As an example, where the marketing/business factions of the organization may make strong decisive choices based on competitive/market factors, such as aggressive pricing to maintain market share, they may be less likely to execute in a consensus building environment with high internal spanning. Similarly, the technical factions within the firm when left to their own devices might make tough decisions based on technological uncertainty, but when faced with short term market forces that require incremental versus breakthrough innovation may cede to organizational consensus against their better judgment. Both of these examples create a scenario where there is opportunity to invoke corporate “reasoning” as a way to maintain the status quo and/or push off hard decisions, such as product phase-out. Since achieving creative abrasion, requires making the different organizational factions rub together in productive ways (Leonard and Straus 1997), management should think of structuring interventions when faced with repeat collaboration management teams to keep the creative abrasion process alive within their organizations (Skilton and Dooley 2010).

Lastly, market orientation has no impact on performance, while firm-level innovativeness has a small impact on performance. Thus, specifically in the presence of external spanning capability, these well researched constructs seem to have virtually no effect.

They may be several reasons for this. First, there is recent evidence that market orientation, while important both in the short and long term, may not provide sustained competitive advantage, since business performance diminishes over time and within industries that have embraced market orientation (Kumar *et al.* 2011). Market orientation can only provide long term performance benefits if it is not imitable by competitors. This research suggests that capabilities such as active information acquisition and dissemination about channels may provide more long term imitability than market orientation, which has become ubiquitous in many industries (McDonough III 2000). Second, subsets of market orientation as defined by Narver and Slater (1990) have not been measured in this study, preferring to use an aggregate measure of this construct. It is possible that subsets of market orientation for instance competitor orientation (Narver and Slater 1990) could account for some of the explained performance. But this would not adequately cover the broader aspect of external product management capability as measured in this study. Hence, although market orientation showed no effect in this study, there remains evidence that its impact on performance is still significant in times of turbulence (Kumar *et al.* 2011). Practically, this means that cultures of innovation along with customer and competitor orientation should continue to be priorities for management; however the quality of the firm's external spanning activities likely enhances these relationships. Consistent with Menguc and Auh (2006), managers should allocate resources to multiple strategic orientations such as market and innovation orientation (i.e. innovativeness), however this study shows that other spanning activities may be much more important. Nurturing external spanning capabilities, such as channel bonding activities with an internal team that display "creative abrasion" appears to result in superior performance.

4.7. CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

This study supports the major hypothesis that product management capability positively affects firm performance. This finding increases in robustness when investigated in the presence of market orientation and firm innovativeness. Product management is conceptualized as both *internal* and *external* boundary spanning capabilities, which are unique to the firm and thus are not easily replicated, leading to superior value.

Combined, these capabilities account for most of the variance in the model irrespective of how market orientated or innovative the firm is. Externally, product management capability is conceptualized as channel understanding and bonding, while internally it speaks to the integrative nature of management, rather than mere coordination of activities.

Although there are many inferences that can be drawn from this study, care must be taken neither to over generalize these results nor to interpret the findings outside of this research context. These results are geographic and time specific in nature and thus generalization to other populations or time periods is limited. This study was conducted in May 2009, eight months after the generally agreed upon awareness of the financial crisis (Wikipedia), thus findings could have a relationship to this unique time period of financial turbulence. Also, the sample of in this study is from a heterogeneous population of Canadian manufacturing SMEs, which poses inherent limitations; not the least of which is that SMEs are more than merely smaller versions of larger enterprises. Since SMEs are known to be highly influenced by the owner/manager, it is also plausible that these results are related to this more complex relationship. For instance, since there were no valid controls for firm size available in this sample, the results of this research could not control for this, where the impact of the owner/manager is likely greater in smaller versus larger SMEs. Thus these study findings deserve further testing beyond this context, for instance using firm size for control, alternate geographic context, a more homogeneous (e.g. single industry) SME population or sampling business units within larger firms. This would add additional insight to these findings.

Subjective measures of firm performance were also used in this study. Future research could benefit from including additional objective measures of performance. Objective, quantifiable measures of performance, for instance return on investment (ROI), return on assets (ROA), etcetera could be added to support the subjective measures of firm performance used in this study. Also, this study used a single key informant format to test hypotheses, but as with many studies that use this method it is prone to common method bias, which can inflate relationships. Lastly, as with many studies into strategic

orientation and firm performance, this study also is limited due to survivor bias introduced in the sample of this study.

Future research could benefit from more diverse and robust measures of firm innovativeness, perhaps even bringing in aspects of service innovation into a second order construct. These measures along with measures of market orientation and performance should also be investigated, since there may be room for more SME specific tailoring of these scales. Future studies also should continue to investigate various firm orientations and their impact on performance. As such, new studies could benefit from including other well researched moderators of market orientation and performance, namely market turbulence, technological turbulence and competitive intensity (Stock and Zacharias 2010, Langerak 2003, Kirca *et al.* 2005, Langerak *et al.* 2007) as well as other aspects of market orientation, such as proactive market orientation (Narver *et al.* 2004). Future investigations could benefit from measuring innovation using complimentary measures of firm level innovativeness. For instance, including scales which focus on the cultural openness to new ideas (Calantone *et al.* 2002, Keskin 2006) could improve the innovativeness measures used in this study.

In conclusion, these findings indicate that external product management capability has a strong effect on firm performance and that management should encourage these external spanning activities. These findings also indicate that there may be an optimum combination of cross-functional *integration* and *coordination* that can process these external spanning activities into action that maximizes organizational performance. Keeping this distinction in mind may assist management in configuring their resources, systems and processes to optimize these relationships. It seems that it may be nearly as important to span the external environment for relevant channel information, as it is to build a culture that encourages cross-functional integration, with timely and decisive action. One without the other may lead to under performance. Future research should examine these more complex questions.

4.8. REFERENCES

- Aldrich, H. and Herker, D., (1977), "Boundary spanning roles and organization structure", *Academy of Management Review*, Vol.2 No.2, pp. 217-230.
- Al-Gahtani, S.S., Hubona, G.S. and Wang, J., (2007), "Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT", *Information Management*, Vol.44 pp. 681-691.
- Atuahene-Gima, K., (1996), "Market orientation and innovation", *Journal of Business Research*, Vol.35 No.2, pp. 93-103.
- Bagozzi, R.P. and Yi, Y., (1988), "On the evaluation of structural equation models", *Academy of Marketing Science Journal*, Vol.16 No.1, pp. 74-95.
- Baker, W.E. and Sinkula, J.M., (2009), "The Complementary Effects of Market Orientation and Entrepreneurial Orientation on Profitability in Small Businesses", *Journal of Small Business Management*, Vol.47 No.4, pp. 443-464.
- Barney, J., (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, Vol.17 No.1, pp. 99-121.
- Baron, R.M. and Kenny, D.A., (1986), "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol.51 No.6, pp. 1173-1182.
- Brettel, M., Engelen, A., Heinemann, F. and Kessell, A., (2007), "The role of market-oriented organizational culture in new entrepreneurial ventures", *Journal of Research in Marketing and Entrepreneurship*, Vol.9 No.1, pp. 40-66.
- Buell, V., (1975), "The changing role of the product manager in consumer goods companies", *Journal of Marketing*, Vol.39 No.3, pp. 3-11.
- Calantone, R.J., Cavusgil, S. and Zhaob, Y., (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, Vol.31 No.6, pp. 515-524.
- Chin, W.,W., (1998), "Issues and opinion on structural equation modeling", *Management Information Systems Quarterly*, Vol.22 No.1, pp. 7-16.
- Cooper, R.G. and Kleinschmidt, E.J., (1993), "Major New Products: What Distinguishes the Winners in the Chemical Industry?", *Journal of Product Innovation Management*, Vol.10 No.2, pp. 90-111.
- Coviello, N. and Brodie, R., (2001), "Contemporary marketing practices of consumer and business-to-business firms: how different are they", *Journal of Business Industrial Marketing*, Vol.16 No.5, pp. 382-398.
- Day, G.S., (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol.58 No.4, pp. 37-52.
- Day, G.S. and Wensley, R., (1988), "Assessing advantage: a framework for diagnosing competitive superiority", *Journal of Marketing*, Vol.52 No.2, pp. 1-20.

- Deshpandé, R. and Farley, J., (2004), "Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey", *International Journal of Research in Marketing*, Vol.21 No.1, pp. 3-22.
- Deshpandé, R., Farley, J. and Webster, F., (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol.57 No.1, pp. 23-38.
- Dominguez, G., (1971), *Product management*. American Management Association, New York.
- Drucker, P.F., (1954), *The Practice of Management*. Harper & Row, New York.
- Eckles, R. and Novotny, T.J., (1984), "Industrial product managers: Authority and responsibility", *Industrial Marketing Management*, Vol.13 No.2, pp. 71-75.
- Eisenhardt, K. and Martin, J., (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol.21 No.10/11, pp. 1105-1122.
- Foley, A. and Fahy, J., (2009), "Seeing market orientation through a capabilities lens", *European Journal of Marketing*, Vol.43 No.1/2, pp. 13-20.
- Fornell, C. and Larcker, D.F., (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol.18 No.1, pp. 39-50.
- Garcia, R. and Calantone, R.J., (2002), "A critical look at technological innovation typology and innovativeness terminology: a literature review.", *Journal of Product Innovation Management*, Vol.19 No.2, pp. 110-132.
- Gatignon, H. and Xuereb, J., (1997), "Strategic orientation of the firm and new product performance", *Journal of Marketing Research*, Vol.34 No.1, pp. 77-90.
- Gemmill, R.G., (1972), "The product manager as an influence agent", *Journal of Marketing*, Vol.36 No.1, pp. 26-30.
- Gorchels, L., (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- GÖTZ, O., KRAFFT, M. and LIEHR-GOBBER, K., 2010. Evaluation of structural equation models using the partial least squares (PLS) approach. In: V. ESPOSITO VINZI, ed, *Handbook of Partial Least Squares*. 1st edn. Verlag Berlin Heidelberg: Springer Handbooks of Computational Statistics, pp. 691-711.
- Gray, B., Matear, S., Boshoff, C. and Matheson, P., (1998), "Developing a better measure of market orientation", *European Journal of Marketing*, Vol.32 No.9/10, pp. 884-903.
- Greenley, G.E., (1995), "Market orientation and company performance: Empirical evidence from UK companies", *British Journal of Management*, Vol.6 No.1, pp. 1-13.
- Griffin, A. and Hauser, J.R., (1996), "Integrating R&D and marketing: a review and analysis of the literature", *Journal of Product Innovation Management*, Vol.13 No.3, pp. 191-215.

- Griffin, A. and Hauser, J.R., (1993), "The voice of the customer", *Marketing Science*, Vol.12 No.1, pp. 1-27.
- Grinstein, A., (2008), "The relationships between market orientation and alternative strategic orientations", *European Journal of Marketing*, Vol.42 No.1/2, pp. 115-134.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L., (2006), *Multivariate Data Analysis*. Pearson Prentice Hall, Upper Saddle River, New Jersey.
- Han, J.K., Kim, N. and Srivastava, R.K., (1998), "Market orientation and organizational performance: Is innovation a missing link?", *The Journal of Marketing*, Vol.62 No.4, pp. 30-45.
- Hsu, S., Wang, Y. and Tzeng, S., (2007), "The source of innovation: Boundary spanner", *Total Quality Management*, Vol.18 No.10, pp. 1133-1145.
- Hulland, J., (1999), "Use of partial least squares (PLS) in strategic management research: A review of four recent studies", *Strategic Management Journal*, Vol.20 No.2, pp. 195-204.
- Hult, G., Hurley, R. and Knight, G., (2004), "Innovativeness: Its antecedents and impact on business performance", *Industrial Marketing Management*, Vol.33 No.5, pp. 429-438.
- Hult, G., Ketchen, D. and Slater, S., (2005), "Market orientation and performance: an integration of disparate approaches", *Strategic Management Journal*, Vol.26 No.12, pp. 1173-1181.
- Hult, T.M. and Ketchen, D.J., (2001), "Does market orientation matter?: A test of the relationship between positional advantage and performance", *Strategic Management Journal*, Vol.22 No.9, pp. 899-906.
- Hunt, S.D. and Morgan, R.M., (1995), "The comparative advantage theory of competition", *Journal of Marketing*, Vol.59 No.2, pp. 1-15.
- Hurley, R. and Hult, G., (1998), "Innovation, market orientation, and organizational learning: an integration and empirical examination", *Journal of Marketing*, Vol.62 No.3, pp. 42-54.
- Jaworski, B. and Kohli, A., (1993), "Market orientation: Antecedents and consequences", *Journal of Marketing*, Vol.57 No.3, pp. 53-70.
- Jennings, P. and Beaver, G., (1997), "The performance and competitive advantage of small firms: A management perspective", *International Small Business Journal*, Vol.15 No.2, pp. 63-75.
- Kahn, K.B., (2001), "Market orientation, interdepartmental integration, and product development performance", *Journal of Product Innovation Management*, Vol.18 No.5, pp. 314-323.
- Kahn, K.B., (1996), "Interdepartmental integration: a definition with implications for product development performance", *Journal of Product Innovation Management*, Vol.13 No.2, pp. 137-151.

- Katsanis, L.P., (2006), "An assessment of professional training for product managers in the pharmaceutical industry", *Journal of Product Brand Management*, Vol.15 No.5, pp. 324-329.
- Katsanis, L.P., Laurin, J.,G. and Pitta, D.A., (1996), "How should product managers' job performance be evaluated in emerging product management systems?", *Journal of Product and Brand Management*, Vol.5 No.6, pp. 5-23.
- Katsanis, L.P. and Pitta, D.A., (1995), "Punctuated equilibrium and the evolution of the product manager", *The Journal of Product and Brand Management*, Vol.4 No.3, pp. 49-60.
- Keskin, H., (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs", *European Journal of Innovation Management*, Vol.9 No.4, pp. 396-417.
- Ketchen, D.J., Hult, G. and Slater, S., (2007), "Toward greater understanding of market orientation and the resource-based view", *Strategic Management Journal*, Vol.28 No.9, pp. 961-964.
- Ketchen, D.J., Thomas, J.B. and Snow, C.C., (1993), "Organizational configurations and performance: A comparison of theoretical approaches", *Academy of Management Journal*, Vol.36 No.6, pp. 1278-1313.
- Kirca, A., Jayachandran, S. and Bearden, W., (2005), "Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance", *Journal of Marketing*, Vol.69 No.2, pp. 24-41.
- Kohli, A., Jaworski, B. and Kumar, A., (1993), "MARKOR: A measure of market orientation", *Journal of Marketing Research*, Vol.30 No.4, pp. 467-477.
- Kumar, V., Jones, E., Venkatesen, R. and Leone, R., (2011), "Is Market Orientation a Source of Sustainable Competitive Advantage or Simply the Cost of Competing?", *Journal of Marketing*, Vol.75 No.1, pp. 16-30.
- Langerak, F., (2003), "An appraisal of research on the predictive power of market orientation", *European Management Journal*, Vol.21 No.4, pp. 447-464.
- Langerak, F., Hultink, E. and Robben, H., (2007), "The mediating role of new product development in the link between market orientation and organizational performance", *Journal of Strategic Marketing*, Vol.15 No.4, pp. 281-305.
- Lehmann, D. and Winer, R., (2005), *Product Management*. McGraw-Hill/Irwin, Boston.
- Leonard, D. and Straus, S., (1997), "Putting your company's whole brain to work", *Harvard Business Review*, Vol.July-Aug pp. 2-10.
- Luck, D.J., (1969), "Interfaces of a product manager", *Journal of Marketing*, Vol.33 No.4, pp. 32-36.
- Lukas, B. and Ferrell, O., (2000), "The effect of market orientation on product innovation", *Journal of the Academy of Marketing Science*, Vol.28 No.2, pp. 239-247.
- Lysonski, S., (1985), "A boundary theory investigation of the product manager's role", *Journal of Marketing*, Vol.49 No.1, pp. 26-40.

- Lysonski, S., Singer, A. and Wilemon, D., (1988), "Coping with environmental uncertainty and boundary spanning in the product manager's role", *Journal of Services Marketing*, Vol.2 No.4, pp. 15-26.
- Lysonski, S. and Woodside, A., (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6 No.3, pp. 169-184.
- Marrone, J.A., Tesluk, P.E. and Carson, J.B., (2007), "A multilevel investigation of antecedents and consequences of team member boundary-spanning behavior", *Academy of Management Journal*, Vol.50 No.6, pp. 1423-1439.
- McDaniel, C. and Gray, D.,A., (1980), "The product manager", *California Management Review*, Vol.23 No.1, pp. 87-94.
- McDonough III, E.F., (2000), "Investigation of factors contributing to the success of cross-functional teams", *Journal of Product Innovation Management*, Vol.17 No.3, pp. 221-235.
- Menguc, B. and Auh, S., (2008), "The asymmetric moderating role of market orientation on the ambidexterity-firm performance relationship for prospectors and defenders", *Industrial Marketing Management*, Vol.37 No.4, pp. 455-470.
- Menguc, B. and Seigyoung, A., (2006), "Creating a Firm-Level Dynamic Capability through Capitalizing on Market Orientation and Innovativeness", *Journal of the Academy of Marketing Science*, Vol.34 No.1, pp. 63-73.
- Miller, D., (1987), "The genesis of configuration", *Academy of Management Review*, Vol.12 No.4, pp. 686-701.
- Murphy, W. and Gorchels, L., (1996), "How to improve product management effectiveness", *Industrial Marketing Management*, Vol.25 No.1, pp. 47-58.
- Nakata, C. and Im, S., (2010), "Spurring Cross-Functional Integration for Higher New Product Performance: A Group Effectiveness Perspective", *Journal of Product Innovation Management*, Vol.27 No.4, pp. 554-571.
- Narver, J. and Slater, S., (1990), "The effect of a market orientation on business profitability", *The Journal of Marketing*, Vol.54 No.4, pp. 20-35.
- Narver, J., Slater, S. and MacLachlan, D., (2004), "Responsive and proactive market orientation and new-product success", *Journal of Product Innovation Management*, Vol.21 No.5, pp. 334-347.
- Nunnally, J. and Bernstein, I., (1994), *Psychometric Theory*. McGraw Hill Inc., New York.
- Olavarrieta, S. and Friedmann, R., (2008), "Market orientation, knowledge-related resources and firm performance", *Journal of Business Research*, Vol.61 No.6, pp. 623-630.
- Olson, E., Slater, S. and Hult, G., (2005), "The Performance implications of fit among business strategy, marketing organization structure, and strategic behavior", *Journal of Marketing*, Vol.69 No.3, pp. 49-65.

- Paladino, A., (2008), "Analyzing the Effects of Market and Resource Orientations on Innovative Outcomes in Times of Turbulence", *Journal of Product Innovation Management*, Vol.25 No.6, pp. 577-592.
- Paladino, A., (2007), "Investigating the drivers of innovation and new product success: A comparison of strategic orientations", *Journal of Product Innovation Management*, Vol.24 No.6, pp. 534-553.
- Pelham, A., (2000), "Market orientation and other potential influences on performance in small and medium-sized manufacturing firms", *Journal of Small Business Management*, Vol.38 No.1, pp. 48-67.
- Pelham, A., (1999), "Influence of environment, strategy, and market orientation on performance in small manufacturing firms", *Journal of Business Research*, Vol.45 No.1, pp. 33-46.
- Pelham, A., (1997), "Mediating influences on the relationship between market orientation and profitability in small industrial firms", *Journal of Marketing Theory and Practice*, Vol.5 No.3, pp. 55-77.
- Priem, R.L. and Butler, J.E., (2001), "Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?", *Academy of Management Review*, Vol.26 No.1, pp. 22-40.
- Roach, D.C., (2011b), "The Impact of Product Management on SME Firm Performance", *Journal of Research in Marketing and Entrepreneurship*, Vol.13 No.1, pp. 1-22.
- Roach, D.C., (2011a), "The Impact of Product Management on SME Performance - Evidence from Canadian Firms", *Journal of Small Business and Enterprise Development*, Vol.18 No.4.
- Rodriguez, C., Carrillat, F. and Jaramillo, F., (2004), "A meta-analysis of the relationship between market orientation and business performance: evidence from five continents", *International Journal of Research in Marketing*, Vol.21 No.2, pp. 179-200.
- Rosenbusch, N., Brinckmann, J. and Bausch, A., (2010), "Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs", *Journal of Business Venturing*, Vol.26 No.4, pp. 441-457.
- Sands, S., (1979), "Is the product manager obsolete?", *Business Quarterly*, Vol.44 No.3, pp. 30-38.
- Sherman, D.J., Berkowitz, D. and Souder, W.E., (2005), "New product development performance and the interaction of cross-functional integration and knowledge management", *Journal of Product Innovation Management*, Vol.22 No.5, pp. 399-411.
- Shoham, A., Rose, G.M. and Kropp, F., (2005), "Market orientation and performance: a meta-analysis", *Marketing Intelligence & Planning*, Vol.23 No.4/5, pp. 435-454.
- Singh, J., (1998), "Striking a balance in boundary-spanning positions: An investigation of some unconventional influences of role stressors and job characteristics on job outcomes of salespeople", *Journal of Marketing*, Vol.62 No.3, pp. 69-86.

- Skilton, P.F. and Dooley, K.J., (2010), "The effects of repeat collaboration on creative abrasion", *The Academy of Management Review*, Vol.35 No.1, pp. 118-134.
- Slater, S. and Narver, J.C., (1999), "Market-oriented is more than being customer-led", *Strategic Management Journal*, Vol.20 No.12, pp. 1165-1168.
- Slater, S.F. and Narver, J.C., (1998), "Research notes and communications customer-led and market-oriented: Let's not confuse the two", *Strategic Management Journal*, Vol.19 No.10, pp. 1001-1006.
- Slater, S.F. and Narver, J.C., (1995), "Market orientation and the learning organization", *Journal of Marketing*, Vol.59 No.3, pp. 63-74.
- Smallbone, D., Leig, R. and North, D., (1995), "The characteristics and strategies of high growth SMEs", *International Journal of Entrepreneurial Behaviour Research*, Vol.1 No.3, pp. 44-62.
- Souder, W.E. and Song, X.M., (1997), "Contingent product design and marketing strategies influencing new product success and failure in US and Japanese electronics firms", *The Journal of Product Innovation Management*, Vol.14 No.1, pp. 21-34.
- Srivastava, R.K., Fahey, L. and Christensen, K.H., (2001), "The resource-based view and marketing: the role of market-based assets in gaining competitive advantage", *Journal of Management*, Vol.27 No.6, pp. 777-802.
- Stock, R.M., (2006), "Interorganizational teams as boundary spanners between supplier and customer companies", *Academy of Marketing Science Journal*, Vol.34 No.4, pp. 588-599.
- Stock, R.M. and Zacharias, N.A., (2010), "Patterns and performance outcomes of innovation orientation" *Journal of the Academy of Marketing Science*, available: <http://www.springerlink.com/content/735u74017gtj7018/>, Published on-line 28-September 2010, Greenvale, N.Y.
- Sun, H. and Zhang, P., (2008), "An exploration of affect factors and their role in user technology acceptance: Mediation and causality", *Journal of the American Society for Information Science and Technology*, Vol.59 No.8, pp. 1252-1262.
- Tenenhaus, M., Vinzi, V., Chatelin, Y. and Lauro, C., (2005), "PLS path modeling", *Computational Statistics Data Analysis*, Vol.48 No.1, pp. 159-205.
- Tushman, M.L. and Scanlan, T.J., (1981a), "Boundary spanning individuals: their role in information transfer and their antecedents", *Academy of Management Journal*, Vol.24 No.2, pp. 289-305.
- Tushman, M.L. and Scanlan, T.J., (1981b), "Characteristics and external orientations of boundary spanning individuals", *Academy of Management Journal*, Vol.24 No.1, pp. 83-97.
- Tyagi, R.K. and Sawhney, S.S., (2010), "High-performance product management: The impact of structure, process, competencies, and role definition", *Journal of Product Innovation Management*, Vol.27 No.1, pp. 83-96.

- Verhees, F. and Meulenbergh, M., (2004), "Market orientation, innovativeness, product innovation, and performance in small firms", *Journal of Small Business Management*, Vol.42 No.2, pp. 134-154.
- Wang, C. and Ahmed, P., (2007), "Dynamic capabilities: A review and research agenda", *International Journal of Management Reviews*, Vol.9 No.1, pp. 31-51.
- Wernerfelt, B., (1984), "A resource-based view of the firm", *Strategic Management Journal*, Vol.5 No.2, pp. 171-180.
- Wikipedia, contributors, Financial Crisis of 2007-2010, Accessed: 2010.
- Wolff, J.A. and Pett, T.L., (2006), "Small-firm performance: Modeling the role of product and process improvements", *Journal of Small Business Management*, Vol.44 No.2, pp. 268-284.
- Wood, V. and Tandon, S., (1994), "Key components in product management success (and failure)", *The Journal of Product Brand Management*, Vol.3 No.1, pp. 19-38.
- Yoo, Y. and Alavi, M., (2001), "Media and group cohesion: Relative influences on social presence, task participation, and group consensus", *MIS Quarterly*, Vol.25 No.3, pp. 371-390.
- Zahra, S., Sapienza, H. and Davidsson, P., (2006), "Entrepreneurship and dynamic capabilities: a review, model and research agenda", *The Journal of Management Studies*, Vol.43 No.4, pp. 917-955.

CHAPTER 5 CONCLUSIONS

5.1. ON THE FIRST STUDY

The purpose of this first study was to review the extant product management literature in an effort to establish the all of the activities performed by product managers and how these fit into the broader competencies of the firm. This background was utilized to establish a set of measures, which could be used to determine product management activities, resulting in thirty two questions, which cover the breadth of product management activities of the firm. This measurement instrument was then pilot tested on a convenience sample of Atlantic Canadian small and medium size enterprises (SMEs) in an effort to validate this scale. The ultimate objective of this study was to assist in hypothesis generation.

This exercise resulted in validating both the product management measurement scale and the firm performance scale. Using results from a small under-determined sample of SMEs (n=63), the firm performance scale was examined and found to be a reliable and dependable aggregate measure of firm performance. Next, several sub-constructs from the extant product management literature were examined through the use of multiple regression, using the aggregate measure of firm performance as the dependent variable. Several of these sub-constructs were found to be important and significant at the exploratory level. Among these were technical superiority, product pricing, sales support and forecasting. These showed both internal consistency and correlation with firm performance. This established for the first time an empirical relationship between the product management literature and firm performance. Other sub-constructs showed internal consistency but not correlation with firm performance. These included internal and external monitoring, competitive intelligence, communication & coordination and market & technical integration.

This study thus provides preliminary validation of measures of product management activity within the enterprise and its relationship to firm performance. It also adds to the product management literature by examining these activities in the context of SMEs, an

area in which the literature makes no distinction. Lastly, it establishes self-reported subjective measures of performance as reliable for future studies.

5.1.1. FIRST STUDY LIMITATIONS

This study had many limitations, many of which are addressed in subsequent studies in this manuscript.

The first limitation includes geographic and selection bias introduced into this study based on the sample of Atlantic Canadian SMEs. This convenience sample was made available through a regional Federal government agency charged with an economic development mandate, which likely introduced many biases. The second limitation was treating manufacturing and technical service firms as a homogeneous population. This was necessary to increase statistical power; however the literature shows a distinct difference between these two disparate populations. Next caution should be exercised when drawing inferences from this small undetermined sample; with an aggregate sample size ($n=63$), representing a response rate of 5.63%. Due to this small sample size, smaller effect sizes would not be evident in this study. Lastly, this study made no attempt to relate these findings to other well researched firm constructs including market, entrepreneurial, learning and/or innovation orientations. Also, no effort was made to control for known moderators of these relationships including (but not limited to) environmental turbulence. Since product management is a broad construct, this study concludes that there is likely some overlap or correlation with many of these empirically established constructs, specifically market orientation, since product management has a strong historical relationship with the marketing functions of the firm.

The major gap in the literature filled by this study is the hereto untested relationship between product management activities and firm performance.

5.2. ON THE SECOND STUDY

The second study was designed to address many of the limitations of the previous pilot study. This included using a larger population of Canadian SMEs, with a more homogeneous sample of manufacturing companies. The other main objective was to relate product management activities to the well established construct of market orientation. Since product management is often considered a marketing function, the fear was that product management may merely be measuring aspects of a firm's market orientation. Lastly, given the larger sample size (n=316), relationships between constructs could be established using more sophisticated analytical tools, such as structural equation modeling (SEM).

Results of this study clearly establish that the product management measures developed from the first study are distinct from market orientation. Principle component analysis with a varimax rotation indicated that the product management measures produced three "clean" factors, which were interpreted as channel analysis & support, product positioning and marketing & technical integration. Two of these factors, namely channel analysis & support and marketing & technical integration, were not only distinct from market orientation, but fully mediated the market orientation - firm performance relationship in this study. This study thus addresses a gap in the literature, since it establishes that product management transcends the functional boundaries of the firm and integrates how information is captured and processed by the firm into action. These actions result in increased firm performance in this population of SMEs.

This hypothesis driven study establishes that both channel analysis & support, and marketing & technical integration affect firm performance, however product positioning (long believed to be a key product management activity) and market orientation have no effect in the presence of these other two dominant constructs. This establishes that the *external* product management activity of channel analysis & support, but not product positioning affects firm performance. The *Internal* product management capability of marketing & technical integration also has an effect on firm performance. This establishes the foundation for the third study, which investigates the *external* and *internal*

product management spanning capabilities in the presence of innovativeness and their resultant affect on performance.

5.2.1. SECOND STUDY LIMITATIONS

The ultimate objective of this study was to establish whether the product management measurement scale was distinct from the well established market orientation construct; which this study establishes.

Although this study addresses many of the shortcomings of the first study, there remain several limitations. This includes the relationship between product management and other constructs, namely firm level innovativeness; the subject of the third and final study. Product management activities of the firm occur at the product – market interface, thus innovation capability may be responsible for some of the relationships which show strong power in this study. In the same vein, other aspects of market orientation, such as proactive market orientation could add explanatory power to the model, beyond the measure of responsive market orientation used in this study. Also, although the self-reported subjective measures of performance again show strong internal consistency, additional objective measures of performance could add robustness to this model. Lastly, this study is specific to the timeframe of analysis and more specifically to Canadian SMEs, which seem to have performed better post financial crisis than many other jurisdictions (e.g. the United States). Thus, replication in other geographic areas would add to this study's findings.

The most salient finding in this study is that *internal* and *external* product management capabilities appear to be good predictors of firm performance.

5.3. ON THE THIRD STUDY

This study is the third and penultimate model in this series. It investigates a fully saturated model by incorporating external and internal product management capabilities in relationship to both market orientation and firm-level innovativeness. The main objective of this study is to provide an empirical investigation into the theoretical basis of

this research, namely the relationship between the resource based view of the firm (RBV) and boundary theory (BT). This establishes boundary spanning as firm capability by using product management activities as a proxy for spanning behavior of the firm.

This fully saturated model did provide several insights into the relationship between product management boundary spanning activity and firm performance. First, external product management capability continues to strongly predict firm performance, while fully mediating the market orientation – performance relationship. This dominant construct accounts for most of the explained variance in the model; however innovativeness as predicted by the extant literature also has an impact on firm performance even in the presence of this dominant construct. The other significant test of theory was the interrelationship between *external* and *internal* boundary spanning. This study empirically tested the theoretical relationship between internal spanning capability and the external capability – firm performance relationship. This relationship was found to be significant, but negative (i.e. a dampening effect). This indicates that no matter how well the firm conducts its external boundary spanning activities, that internal spanning (or cross-functional *integration*) has an impact on performance. The more integrated the team, the weaker the firm performs. This finding contradicts much of the literature, which extols the virtue of cross-functional *coordination*, however the construct in this study measures how *integrated* the team is through its spanning activities. It is possible that integrated teams may suffer from a lessening of creative abrasion between actors; such that they tend to assimilate instead of collaborate to increase firm performance. As such, this study indicates that there may be an optimum point where collaboration may digresses into assimilation and that the creative abrasion that powers cross-functional *coordination* is negated.

5.3.1. THIRD STUDY LIMITATIONS

Care must be taken neither to over generalize these results nor to interpret the findings outside of this research context. As with the previous two studies, these results are geographic and time specific in nature. This study was conducted eight months after the generally agreed upon date of the financial crisis (September 15, 2008) following the

bankruptcy of Leman Brothers (Wikipedia). It is not implausible that findings in this study could have a relationship to this unique time period of financial turbulence.

The second limitation is the population chosen. SMEs are more than merely smaller versions of larger enterprises, thus generalizability to larger organizations cannot be inferred from this study. SMEs tend to be highly impacted by the owner managers, who see the firm as providing other benefits (e.g. lifestyle) rather than purely profit and growth as measures of performance. The smaller the firm, the more likely that it remains closely influenced by the owner/manager. Since this study did not control for firm size the results of this research has inherent limitations outside of this context. Although these SMEs were all from the manufacturing sector, this sample should still be considered heterogeneous, since this study did also not control for industry sectors or firm size. Future studies could benefit from a more homogeneous SME population (e.g. single industry), controls for firm size and ownership status and/or sampling business units within larger firms. This would add additional insight to these findings.

Next this study benefitted from subjective measures of firm performance, since these are more readily reported by SMEs, who often are reluctant to share objective performance data. A combination of objective and subjective measures of profitability and growth could enhance these results and should be considered in future studies. The use of single key informants also has inherent limitations and can be prone to common method bias, which can inflate relationships. As with many studies into strategic orientation and firm performance, this study also is limited due to survivor bias introduced in the sample of this study.

Lastly, the firm innovativeness measure used in this study based on the work of Gatignon and Xureb (1997) suffered from a few low loading indicators, specifically the two reverse indicators. Future studies could benefit from using positive questions as well as employing complimentary measures of firm level innovativeness. Including scales which focus on the cultural openness to new ideas (Calantone *et al.* 2002, Keskin 2006) or service innovation which could add more depth to this construct and model.

5.4. ACADEMIC CONTRIBUTION

The most important contribution of this research is that it links the resource based view of the firm (RBV) with boundary theory (BT), by considering boundary spanning activities as firm capability. This research considers boundary theory a mezzo-theoretical construct, which gained some prominence in the 1970s and 1980s, but mostly languished in the shadow of more dominant strategic management theories such as the RBV. Modern management literature has shown preference for the more elegant view of the firm as a bundle of resources and capabilities, rather than the messy implications associated with boundary spanning. Thus the literature has mostly ignored spanning activities by focusing on functional specialties such as marketing, finance or product development, while seeing the modern firm as a bundle of unique resources and capabilities within an industry. As a result, few academics have examined the spanning activities that are inherent within organizations and their result on organizational performance. This research ultimately attempts to rectify this gap in the literature.

The concept of boundary spanning has been developed by several researchers in strategic management (Tushman and Scanlan 1981a, Srivastava *et al.* 2001, Hsu *et al.* 2007) and marketing (Day 1994, Day and Wensley 1988, Hult and Ketchen 2001), however, to the author's knowledge, none have fully explicated boundary spanning within the RBV literature or empirically tied it to firm performance. This study both provides a theoretical bridge between these two theoretical views and an empirical investigation as to its impact on firm performance.

This leads to the second academic contribution; empirically testing boundary spanning capability's relationship to firm performance. This is possible through the validation of a measurement scale for product management, which links the extant product management literature. This is the first research study to specifically examine product management as a set of boundary spanning capabilities. This research thus addresses this gap by using product management as a proxy for *internal* and *external* spanning capabilities of the organization. The results corroborate the product management literature which infers that product management is fundamentally a boundary spanning capability of the firm. It

integrates external spanning information with internal spanning activities in order to optimize the market performance of products. This empirical research supports this largely anecdotal view of product management, finding that both external and internal spanning affect firm performance. Specifically, external product management encompasses channel bonding activities, while internal spanning speaks to the integration of the technical and marketing functions of the organization.

This leads to the third contribution, that external boundary spanning is a strong predictor of firm performance, irrespective of other well established firm capabilities including market orientation and firm innovativeness. The extant product management literature suggests that external spanning activities should enhance product performance in the marketplace (Lysonski 1985, Gorchels 2005, Lysonski and Woodside 1989, Katsanis and Pitta 1995, Murphy and Gorchels 1996, Tyagi and Sawhney 2010, Lysonski *et al.* 1988) and thus, by extrapolation, firm performance within its industry. Some go so far as to criticize the excessive fixation on internal spanning activities at the expense of external spanning activities, which are deemed more critical to long term performance (Gorchels 2005, Tyagi and Sawhney 2010). This research provides empirical evidence that external spanning capability is a significant predictor of performance. When modeled within the context of market orientation and innovativeness, this construct maintains its dominance, thus providing additional support to the strength of external boundary spanning.

Lastly, this research establishes internal boundary spanning as a moderator of the external spanning capability – firm performance relationship. This study suggests that firms do not necessarily benefit from this integrated internal boundary spanning behavior. The well established belief that cross-functional behavior enhances performance did hold true in this study; however it had an inverse relationship on performance. This seems to shed light on aspects of the cross-functional *integration* processes within the firm versus cross-functional *coordination*. This research indicates that teams that are more integrated may actually be assimilating through the breakdown of the creative abrasion process (Skilton and Dooley 2010, Leonard and Straus 1997). As teams repetitively collaborate, they become more efficient at managing execution details, but tend to buy into the dominant

mental model (Skilton and Dooley 2010). This makes challenging the mental model difficult, risky and uncomfortable for the organization, which results in a reaffirmation of the status quo. Hence, increasing internal spanning activity (i.e. stronger team integration) appears to dampen the effect of external spanning activities, which is shown in this study to improve firm performance.

5.5. MANAGERIAL CONTRIBUTION

The most important managerial implication resulting from this study is that external spanning capability appears to strongly influence firm performance. This corroborates much of the product management literature, which emphasizes that activities such as monitoring the product in the marketplace and interaction with channel partners, should allow the firm to make better decisions on such things as pricing or product phase-out. These timely decisions based on information assimilated through external spanning activities appear to significantly affect firm performance. This study indicates that this set of external spanning capabilities is a strong predictor of performance irrespective of whether the firm is market orientated or displays firm-level innovativeness. This has managerial implications since this highlights that the stronger this set of external boundary spanning capabilities, the more likely the firm will perform better. In SMEs this may be particularly important since the owner/manager is often the primary external boundary spanner. How these owner/managers process, codify, reduce or store information may influence how well the firm performs in the long run. As a result, management should encourage external boundary spanning roles amongst team members as a way to balance any bias associated with individual boundary spanners.

The next significant managerial implication is that when this information is processed through an internally spanning/integrated team, it diminishes the impact of external spanning, resulting in reduced firm performance. This seems to be related to the difference between cross-functional *coordination* and cross-functional *integration*. The former speaks to the collaborative efforts of the team, while the latter speaks to the level of assimilation. This assimilation through repeat collaboration (Skilton and Dooley 2010) may short circuit the creative abrasion process where different organizational

factions rub together in productive ways (Leonard and Straus 1997). When this abrasion process cedes to consensus building, the result appears to be reduced firm performance. Management should consider structuring interventions or bringing in team members with contrarian points of view in order to keep the creative abrasion process alive within their organizations (Skilton and Dooley 2010). According to the results of this study, this should optimize resource allocation to external spanning activities and thus positively influence firm performance.

Lastly, market orientation has no impact on performance in this study, while firm-level innovativeness maintains a small impact. Much has been written in both the academic literature and popular business press about the benefits of striving to be a market driven organization. This research does not refute these claims, but does expose other drivers of firm performance, namely boundary spanning capabilities. Recent evidence may hold clues as to the long term relationship between market orientation and firm performance. Market orientation can only provide superior long term performance if it is not imitable by competitors, however this research suggests that capabilities such as external spanning may provide more long term imitability than market orientation, which has become ubiquitous in many industries and is trending downward (McDonough III 2000). Market orientation's impact on performance is still important in times of turbulence (Kumar *et al.* 2011), thus for practitioners this means that cultures of innovation along with customer and competitor orientation should still remain priorities for management. However, this study shows that spanning activities may have greater impact on performance. Management should consider nurturing external spanning capabilities, such as channel bonding activities with an internal "creatively abrasive" management team in order to drive performance.

5.6. CONCLUSION

In conclusion, the key propositions of this study are briefly reviewed.

Proposition 1: Firms with cultures of market orientation and innovativeness perform better than those which merely display cultures of market orientation

This study indicates that as predicted by the literature, firms displaying innovativeness do perform better than those who are merely market oriented. The relationship between market orientation and innovativeness is one of partial mediation, which indicates that innovativeness is one of the routes through which market orientation affects performance. Divorced of the presence of other constructs in this model, market orientation continues to predict firm performance and this relationship is enhanced through firm-level innovativeness. Thus, management should continue to support cultures of market and innovativeness within their organizations.

Proposition 2: In the presence of cultures of innovativeness and market orientation, firms which display external product management spanning capabilities, perform better than those who do not

This proposition does hold true in this context. External product management, conceptualized as channel understanding and bonding accounts for most of the predictive ability of the model. This study is the first to link the product management literature to firm performance and adds empirical support for the largely anecdotal proposition that firms who display external product management capability should perform better. This occurs irrespective of other more generally accepted firm orientations; namely market orientation and firm innovativeness.

Proposition 3: In the presence of cultures of innovativeness and market orientation, firms which display internal product management spanning capabilities, perform better than those who do not

This proposition in retrospect is more complicated than initially conceived. Internal product management spanning capability does improve the predictive ability of this study's model, however it does so by moderating the external product management – firm performance relationship, such that this effect dampens firm performance. Thus, although it improves the ability to predict performance, its net effect on the dependent construct (performance) is reduced. As a result, firms which display internal product management spanning capabilities, conceptualized as the integration of the marketing and technical factions of the firm, reduces firm performance. The more integrated the team,

the more it reduces overall firm performance. This insight may shed more light on the difference between management team *integration* versus *coordination*.

In conclusion, I would like to revisit my overarching research question:

“Does product management capability, defined as external and internal boundary spanning activities, positively affect firm performance”

This research suggests that it does. The relationship between internal and external product management capability is however a moderated relationship. External product management capability is negatively moderated by internal product management capability, but together these capabilities have strong predictive value in this model and population.

Whether these relationships can be corroborated through future research is yet to be established, but this research indicates that the spanning activities traditionally associated with the product management function of the firm, do impact firm performance. Since there appears to be some renewed interest in product management (Tyagi and Sawhney 2010) and specifically spanning activity within the firm (Stock and Zacharias 2010), this research goes one step further by establishing product management boundary spanning as a latent firm capability.

The last words are reiterated from the conclusions of chapter three, *“perhaps the time has come to rekindle academic interest in product management; an area of research that has languished in the management literature”* (Roach 2011b; pg. 14).

5.7. REFERENCES

- Calantone, R.J., Cavusgil, S. and Zhaob, Y., (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, Vol.31 No.6, pp. 515-524.
- Day, G.S., (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol.58 No.4, pp. 37-52.
- Day, G.S. and Wensley, R., (1988), "Assessing advantage: a framework for diagnosing competitive superiority", *Journal of Marketing*, Vol.52 No.2, pp. 1-20.
- Gorchels, L., (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- Hsu, S., Wang, Y. and Tzeng, S., (2007), "The source of innovation: Boundary spanner", *Total Quality Management*, Vol.18 No.10, pp. 1133-1145.
- Hult, T.M. and Ketchen, D.J., (2001), "Does market orientation matter?: A test of the relationship between positional advantage and performance", *Strategic Management Journal*, Vol.22 No.9, pp. 899-906.
- Katsanis, L.P. and Pitta, D.A., (1995), "Punctuated equilibrium and the evolution of the product manager", *The Journal of Product and Brand Management*, Vol.4 No.3, pp. 49-60.
- Keskin, H., (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs", *European Journal of Innovation Management*, Vol.9 No.4, pp. 396-417.
- Kumar, V., Jones, E., Venkatesen, R. and Leone, R., (2011), "Is Market Orientation a Source of Sustainable Competitive Advantage or Simply the Cost of Competing?", *Journal of Marketing*, Vol.75 No.1, pp. 16-30.
- Leonard, D. and Straus, S., (1997), "Putting your company's whole brain to work", *Harvard Business Review*, Vol.July-Aug pp. 2-10.
- Lysonski, S., (1985), "A boundary theory investigation of the product manager's role", *Journal of Marketing*, Vol.49 No.1, pp. 26-40.
- Lysonski, S., Singer, A. and Wilemon, D., (1988), "Coping with environmental uncertainty and boundary spanning in the product manager's role", *Journal of Services Marketing*, Vol.2 No.4, pp. 15-26.
- Lysonski, S. and Woodside, A., (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6 No.3, pp. 169-184.
- McDonough III, E.F., (2000), "Investigation of factors contributing to the success of cross-functional teams", *Journal of Product Innovation Management*, Vol.17 No.3, pp. 221-235.
- Murphy, W. and Gorchels, L., (1996), "How to improve product management effectiveness", *Industrial Marketing Management*, Vol.25 No.1, pp. 47-58.
- Roach, D.C., (2011b), "The Impact of Product Management on SME Firm Performance", *Journal of Research in Marketing and Entrepreneurship*, Vol.13 No.1, pp. 1-22.

- Skilton, P.F. and Dooley, K.J., (2010), "The effects of repeat collaboration on creative abrasion", *The Academy of Management Review*, Vol.35 No.1, pp. 118-134.
- Srivastava, R.K., Fahey, L. and Christensen, K.H., (2001), "The resource-based view and marketing: the role of market-based assets in gaining competitive advantage", *Journal of Management*, Vol.27 No.6, pp. 777-802.
- Stock, R.M. and Zacharias, N.A., (2010), "Patterns and performance outcomes of innovation orientation" *Journal of the Academy of Marketing Science*, available: <http://www.springerlink.com/content/735u74017gtj7018/>, Published on-line 28-September 2010, Greenvale, N.Y.
- Tushman, M.L. and Scanlan, T.J., (1981a), "Boundary spanning individuals: their role in information transfer and their antecedents", *Academy of Management Journal*, Vol.24 No.2, pp. 289-305.
- Tyagi, R.K. and Sawhney, S.S., (2010), "High-performance product management: The impact of structure, process, competencies, and role definition", *Journal of Product Innovation Management*, Vol.27 No.1, pp. 83-96.
- Wikipedia, contributors, Financial Crisis of 2007-2010, Accessed: 2010.

Bibliography

- Aldrich, H. and Herker, D., (1977), "Boundary spanning roles and organization structure", *Academy of Management Review*, Vol.2 No.2, pp. 217-230.
- Al-Gahtani, S.S., Hubona, G.S. and Wang, J., (2007), "Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT", *Information Management*, Vol.44 pp. 681-691.
- Atuahene-Gima, K., (2005b), "Resolving the capability—rigidity paradox in new product innovation", *Journal of Marketing*, Vol.69 No.4, pp. 61-83.
- Atuahene-Gima, K., (1996), "Market orientation and innovation", *Journal of Business Research*, Vol.35 No.2, pp. 93-103.
- Bagozzi, R.P. and Yi, Y., (1988), "On the evaluation of structural equation models", *Academy of Marketing Science Journal*, Vol.16 No.1, pp. 74-95.
- Baker, W.E. and Sinkula, J.M., (2009), "The Complementary Effects of Market Orientation and Entrepreneurial Orientation on Profitability in Small Businesses", *Journal of Small Business Management*, Vol.47 No.4, pp. 443-464.
- Barney, J., (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, Vol.17 No.1, pp. 99-121.
- Barney, J., Wright, M. and Ketchen, D., (2001), "The resource-based view of the firm: Ten years after 1991", *Journal of Management*, Vol.27 No.6, pp. 625-642.
- Baron, R.M. and Kenny, D.A., (1986), "The moderator—mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol.51 No.6, pp. 1173-1182.
- Becherer, R.C., Halstead, D. and Haynes, P.J., (2003), "Marketing orientation in SMEs: Effects of the internet environment", *New England Journal of Entrepreneurship*, Vol.6 No.1, pp. 13-22.
- Becherer, R.C., Halstead, D. and Haynes, P.J., (2001), "Marketing orientation in SMEs: Effects of the internal environment", *Journal of Research in Marketing and Entrepreneurship*, Vol.3 No.1, pp. 1-17.
- Berek, R.L., (1998), "Product management a work in progress", *Pharmaceutical Executive*, Vol.18 No.3, pp. 60-66.
- Borch, O. and Madsen, E., (2007), "Dynamic Capabilities facilitating innovative strategies in SMEs", *International Journal of Technoentrepreneurship*, Vol.1 No.1, pp. 109-125.
- Brettel, M., Engelen, A., Heinemann, F. and Kessell, A., (2007), "The role of market-oriented organizational culture in new entrepreneurial ventures", *Journal of Research in Marketing and Entrepreneurship*, Vol.9 No.1, pp. 40-66.
- Bristow, D. and Frankwick, G., (1994), "Product managers' influence tactics in marketing strategy development and implementation", *Journal of Strategic Marketing*, Vol.2 No.3, pp. 211-228.

- Buell, V., (1975), "The changing role of the product manager in consumer goods companies", *Journal of Marketing*, Vol.39 No.3, pp. 3-11.
- Calantone, R.J., Cavusgil, S. and Zhaob, Y., (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, Vol.31 No.6, pp. 515-524.
- Chaston, I. and Mangles, T., (1997), "Core Capabilities as Predictors of Growth Potential in Small Manufacturing Firms.", *Journal of Small Business Management*, Vol.35 No.1, pp. 47-57.
- Chin, W.,W., (1998), "Issues and opinion on structural equation modeling", *Management Information Systems Quarterly*, Vol.22 No.1, pp. 7-16.
- Clewett, R. and Stasch, S., (1975), "Shifting role of the product manager", *Harvard Business Review*, Vol.53 No.1, pp. 65-73.
- Cohen, W.M. and Levinthal, D.A., (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol.35 No.1, pp. 128-152.
- Connolly, K.E., (2002), "Growth by design: Product management keeps financial giant nimble", *Design Management Journal*, Vol.13 No.2, pp. 24-32.
- Cooper, R.G. and Kleinschmidt, E.J., (1993), "Major New Products: What Distinguishes the Winners in the Chemical Industry?", *Journal of Product Innovation Management*, Vol.10 No.2, pp. 90-111.
- Cossé, T. and Swan, J., (1983), "Strategic marketing planning by product managers—room for improvement?", *Journal of Marketing*, Vol.47 No.3, pp. 92-103.
- Coviello, N. and Brodie, R., (2001), "Contemporary marketing practices of consumer and business-to-business firms: how different are they", *Journal of Business Industrial Marketing*, Vol.16 No.5, pp. 382-398.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L., (1989), "Examining product managers' job satisfaction and performance using selected organizational behavior variables", *Journal of the Academy of Marketing Science*, Vol.17 No.2, pp. 147-155.
- Cummings, T.,W., Jackson, D.,W. and Ostrom, L.,L., (1984), "Differences between industrial and consumer product managers", *Industrial Marketing Management*, Vol.13 No.3, pp. 171-180.
- Dawes, P.L. and Patterson, P.G., (1988), "The performance of industrial and consumer product managers", *Industrial Marketing Management*, Vol.17 No.1, pp. 73-84.
- Day, G.S., (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol.58 No.4, pp. 37-52.
- Day, G.S. and Wensley, R., (1988), "Assessing advantage: a framework for diagnosing competitive superiority", *Journal of Marketing*, Vol.52 No.2, pp. 1-20.
- Deshpandé, R. and Farley, J., (2004), "Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey", *International Journal of Research in Marketing*, Vol.21 No.1, pp. 3-22.

- Deshpandé, R. and Farley, J., (1998), "The market orientation construct: Correlations, culture, and comprehensiveness", *Journal of Market-focused Management*, Vol.2 No.3, pp. 237-239.
- Deshpandé, R., Farley, J. and Webster, F., (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol.57 No.1, pp. 23-38.
- Dominguez, G., (1971), *Product management*. American Management Association, New York.
- Drucker, P.F., (1954), *The Practice of Management*. Harper & Row, New York.
- Eckles, R. and Novotny, T.J., (1984), "Industrial product managers: Authority and responsibility", *Industrial Marketing Management*, Vol.13 No.2, pp. 71-75.
- Eisenhardt, K. and Martin, J., (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol.21 No.10/11, pp. 1105-1122.
- Fahy, J. and Smithee, A., (1999), "Strategic marketing and the resource based view of the firm", *Academy of Marketing Science Review*, Vol.10 No.1, pp. 1-20.
- Foley, A. and Fahy, J., (2009), "Seeing market orientation through a capabilities lens", *European Journal of Marketing*, Vol.43 No.1/2, pp. 13-20.
- Fornell, C. and Larcker, D.F., (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol.18 No.1, pp. 39-50.
- Frishammar, J., (2009), "The overestimated role of strategic orientations for international performance in smaller firms", *Journal of International Entrepreneurship*, Vol.7 No.1, pp. 57-77.
- Garcia, R. and Calantone, R.J., (2002), "A critical look at technological innovation typology and innovativeness terminology: a literature review.", *Journal of Product Innovation Management*, Vol.19 No.2, pp. 110-132.
- Gatignon, H. and Xuereb, J., (1997), "Strategic orientation of the firm and new product performance", *Journal of Marketing Research*, Vol.34 No.1, pp. 77-90.
- Gemmill, R.G., (1972), "The product manager as an influence agent", *Journal of Marketing*, Vol.36 No.1, pp. 26-30.
- Genfen, D., Straub, D.W. and Boudreau, M.C., (2000), "Structural equation modeling and regression: guidelines for research practice" *Communications of the Association for Information Systems* Vol.<http://aisel.aisnet.org/cais/> .
- Giese, T.,D. and Wiesenberger, T.,M., (1982), "Product manager in perspective", *Journal of Business Research*, Vol.10 No.3, pp. 267-277.
- Gorchels, L., (2005), *The Product Manager's Handbook*. McGraw-Hill, New York.
- Gorchels, L., (2003), "Transitioning from Engineering to Product Management", *Engineering Management Journal*, Vol.15 No.4, pp. 40-47.

- Götz, O., Krafft, M. And Liehr-Gobbers, K., 2010. Evaluation of structural equation models using the partial least squares (PLS) approach. In: V. Esposito Vinzi, editor, *Handbook of Partial Least Squares*. 1st edition. Verlag Berlin Heidelberg: Springer Handbooks of Computational Statistics, pp. 691-711.
- Gray, B., Matear, S., Boshoff, C. and Matheson, P., (1998), "Developing a better measure of market orientation", *European Journal of Marketing*, Vol.32 No.9/10, pp. 884-903.
- Greenley, G.E., (1995), "Market orientation and company performance: Empirical evidence from UK companies", *British Journal of Management*, Vol.6 No.1, pp. 1-13.
- Griffin, A. and Hauser, J.R., (1996), "Integrating R&D and marketing: a review and analysis of the literature", *Journal of Product Innovation Management*, Vol.13 No.3, pp. 191-215.
- Griffin, A. and Hauser, J.R., (1993), "The voice of the customer", *Marketing Science*, Vol.12 No.1, pp. 1-27.
- Grinstein, A., (2008), "The relationships between market orientation and alternative strategic orientations", *European Journal of Marketing*, Vol.42 No.1/2, pp. 115-134.
- Hadjimanolis, A., (2000), "A resource-based view of innovativeness in small firms", *Technology Analysis and Strategic Management*, Vol.12 No.2, pp. 263-281.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L., (2006), *Multivariate Data Analysis*. Pearson Prentice Hall, Upper Saddle River, New Jersey.
- Han, J.K., Kim, N. and Srivastava, R.K., (1998), "Market orientation and organizational performance: Is innovation a missing link?", *The Journal of Marketing*, Vol.62 No.4, pp. 30-45.
- Hansen, D.J. and Eggers, F., (2010), "The marketing/entrepreneurship interface; a report on the "Charleston Summit"", *Journal of Research in Marketing and Entrepreneurship*, Vol.12 No.1, pp. 42-53.
- Hise, R.,T. and Kelly, P.,J., (1978), "Product management on trial", *Journal of Marketing*, Vol.42 No.4, pp. 28-33.
- Hsu, S., Wang, Y. and Tzeng, S., (2007), "The source of innovation: Boundary spanner", *Total Quality Management*, Vol.18 No.10, pp. 1133-1145.
- Huang, X., Soutar, G.N. and Brown, A., (2002), "New product development processes in small and medium-sized enterprises: Some Australian evidence", *Journal of Small Business Management*, Vol.40 No.1, pp. 27-42.
- Hulland, J., (1999), "Use of partial least squares (PLS) in strategic management research: A review of four recent studies", *Strategic Management Journal*, Vol.20 No.2, pp. 195-204.
- Hult, G., Hurley, R. and Knight, G., (2004), "Innovativeness: Its antecedents and impact on business performance", *Industrial Marketing Management*, Vol.33 No.5, pp. 429-438.

- Hult, G., Ketchen, D. and Slater, S., (2005), "Market orientation and performance: an integration of disparate approaches", *Strategic Management Journal*, Vol.26 No.12, pp. 1173-1181.
- Hult, T.M. and Ketchen, D.J., (2001), "Does market orientation matter?: A test of the relationship between positional advantage and performance", *Strategic Management Journal*, Vol.22 No.9, pp. 899-906.
- Hunt, S.D. and Morgan, R.M., (1995), "The comparative advantage theory of competition", *Journal of Marketing*, Vol.59 No.2, pp. 1-15.
- Hurley, R. and Hult, G., (1998), "Innovation, market orientation, and organizational learning: an integration and empirical examination", *Journal of Marketing*, Vol.62 No.3, pp. 42-54.
- Jaworski, B. and Kohli, A., (1993), "Market orientation: Antecedents and consequences", *Journal of Marketing*, Vol.57 No.3, pp. 53-70.
- Jennings, P. and Beaver, G., (1997), "The performance and competitive advantage of small firms: A management perspective", *International Small Business Journal*, Vol.15 No.2, pp. 63-75.
- Kahn, K.B., (2001), "Market orientation, interdepartmental integration, and product development performance", *Journal of Product Innovation Management*, Vol.18 No.5, pp. 314-323.
- Kahn, K.B., (1996), "Interdepartmental integration: a definition with implications for product development performance", *Journal of Product Innovation Management*, Vol.13 No.2, pp. 137-151.
- Karlsson, C. and Olsson, O., (1998), "Product innovation in small and large enterprises", *Small Business Economics*, Vol.10 No.1, pp. 31-46.
- Katsanis, L.P., (2006), "An assessment of professional training for product managers in the pharmaceutical industry", *Journal of Product Brand Management*, Vol.15 No.5, pp. 324-329.
- Katsanis, L.P., (1999), "Some effects of changes in brand management systems: issues and implications", *International Marketing Review*, Vol.16 No.6, pp. 518-532.
- Katsanis, L.P., Laurin, J.,G. and Pitta, D.A., (1996), "How should product managers' job performance be evaluated in emerging product management systems?", *Journal of Product and Brand Management*, Vol.5 No.6, pp. 5-23.
- Katsanis, L.P. and Pitta, D.A., (1999), "The performance appraisal process of pharmaceutical product managers in Canada: an empirical study", *Journal of Product and Brand Management*, Vol.8 No.6, pp. 463-487.
- Katsanis, L.P. and Pitta, D.A., (1995), "Punctuated equilibrium and the evolution of the product manager", *The Journal of Product and Brand Management*, Vol.4 No.3, pp. 49-60.
- Kelly, P.,J. and Hise, R.,T., (1979), "Industrial and consumer goods product managers are different", *Industrial Marketing Management*, Vol.8 No.4, pp. 325-332.

- Keskin, H., (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs", *European Journal of Innovation Management*, Vol.9 No.4, pp. 396-417.
- Ketchen, D.J., Hult, G. and Slater, S., (2007), "Toward greater understanding of market orientation and the resource-based view", *Strategic Management Journal*, Vol.28 No.9, pp. 961-964.
- Ketchen, D.J., Thomas, J.B. and Snow, C.C., (1993), "Organizational configurations and performance: A comparison of theoretical approaches", *Academy of Management Journal*, Vol.36 No.6, pp. 1278-1313.
- Kirca, A., Jayachandran, S. and Bearden, W., (2005), "Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance", *Journal of Marketing*, Vol.69 No.2, pp. 24-41.
- Kohli, A., Jaworski, B. and Kumar, A., (1993), "MARKOR: A measure of market orientation", *Journal of Marketing Research*, Vol.30 No.4, pp. 467-477.
- Kumar, V., Jones, E., Venkatesen, R. and Leone, R., (2011), "Is Market Orientation a Source of Sustainable Competitive Advantage or Simply the Cost of Competing?", *Journal of Marketing*, Vol.75 No.1, pp. 16-30.
- Langerak, F., (2004), "The Impact of Market Orientation, Product Advantage, and Launch Proficiency on New Product Performance and Organizational Performance", *Journal of Product Innovation Management*, Vol.21 No.2, pp. 79-94.
- Langerak, F., (2003), "An appraisal of research on the predictive power of market orientation", *European Management Journal*, Vol.21 No.4, pp. 447-464.
- Langerak, F., Hultink, E. and Robben, H., (2007), "The mediating role of new product development in the link between market orientation and organizational performance", *Journal of Strategic Marketing*, Vol.15 No.4, pp. 281-305.
- Ledwith, A. and O'Dwyer, M., (2008), "Product launch, product advantage and market orientation in SMEs", *Journal of Small Business and Enterprise Development*, Vol.15 No.1, pp. 96-110.
- Lehmann, D. and Winer, R., (2005), *Product Management*. McGraw-Hill/Irwin, Boston.
- Leonard, D. and Straus, S., (1997), "Putting your company's whole brain to work", *Harvard Business Review*, Vol.July-Aug pp. 2-10.
- Lockett, A., Thompson, S. and Morgenstern, U., (2009), "The development of the resource-based view of the firm: A critical appraisal", *International Journal of Management Reviews*, Vol.11 No.1, pp. 9-28.
- Luck, D.J., (1969), "Interfaces of a product manager", *Journal of Marketing*, Vol.33 No.4, pp. 32-36.
- Lukas, B. and Ferrell, O., (2000), "The effect of market orientation on product innovation", *Journal of the Academy of Marketing Science*, Vol.28 No.2, pp. 239-247.

- Lumpkin, G.T. and Dess, G.D., (1996), "Clarifying the entrepreneurial orientation construct and linking it to performance", *Academy of Management Review*, Vol.21 No.1, pp. 135-172.
- Lysonski, S., (1985), "A boundary theory investigation of the product manager's role", *Journal of Marketing*, Vol.49 No.1, pp. 26-40.
- Lysonski, S., Levas, M. and Lavenka, N., (1995), "Environmental uncertainty and organizational structure: A product management perspective", *Journal of Product and Brand Management*, Vol.4 No.3, pp. 7-18.
- Lysonski, S., Singer, A. and Wilemon, D., (1988), "Coping with environmental uncertainty and boundary spanning in the product manager's role", *Journal of Services Marketing*, Vol.2 No.4, pp. 15-26.
- Lysonski, S. and Woodside, A., (1989), "Boundary role spanning behavior, conflicts and performance of industrial product managers", *Journal of Product Innovation Management*, Vol.6 No.3, pp. 169-184.
- Marrone, J.A., Tesluk, P.E. and Carson, J.B., (2007), "A multilevel investigation of antecedents and consequences of team member boundary-spanning behavior", *Academy of Management Journal*, Vol.50 No.6, pp. 1423-1439.
- McBurney, D.H. and White, T.L., (2003), *Research Methods*. Wadsworth Publishing, USA.
- McDaniel, C. and Gray, D.,A., (1980), "The product manager", *California Management Review*, Vol.23 No.1, pp. 87-94.
- McDonough III, E.F., (2000), "Investigation of factors contributing to the success of cross-functional teams", *Journal of Product Innovation Management*, Vol.17 No.3, pp. 221-235.
- Menguc, B. and Auh, S., (2008), "The asymmetric moderating role of market orientation on the ambidexterity-firm performance relationship for prospectors and defenders", *Industrial Marketing Management*, Vol.37 No.4, pp. 455-470.
- Menguc, B. and Seigyoung, A., (2006), "Creating a Firm-Level Dynamic Capability through Capitalizing on Market Orientation and Innovativeness", *Journal of the Academy of Marketing Science*, Vol.34 No.1, pp. 63-73.
- Meserve, W., (1989), "The Changing Role of Product Management", *Electronic Business*, Vol.15 No.1, pp. 143-145.
- Miles, M. and Darroch, J., (2008), "A Commentary on Current Research at the Marketing and Entrepreneurship Interface", *Journal of Small Business Management*, Vol.46 No.1, pp. 46-49.
- Miller, D., (1987), "The genesis of configuration", *Academy of Management Review*, Vol.12 No.4, pp. 686-701.
- Morrish, S., (2009), "Portfolio entrepreneurs: an effectual approach to multiple venture development", *Journal of Research in Marketing and Entrepreneurship*, Vol.11 No.1, pp. 32-48.

- Murphy, W. and Gorchels, L., (1996), "How to improve product management effectiveness", *Industrial Marketing Management*, Vol.25 No.1, pp. 47-58.
- Nakata, C. and Im, S., (2010), "Spurring Cross-Functional Integration for Higher New Product Performance: A Group Effectiveness Perspective", *Journal of Product Innovation Management*, Vol.27 No.4, pp. 554-571.
- Narver, J. and Slater, S., (1990), "The effect of a market orientation on business profitability", *The Journal of Marketing*, Vol.54 No.4, pp. 20-35.
- Narver, J., Slater, S. and MacLachlan, D., (2004), "Responsive and proactive market orientation and new-product success", *Journal of Product Innovation Management*, Vol.21 No.5, pp. 334-347.
- Nunnally, J. and Bernstein, I., (1994), *Psychometric Theory*. McGraw Hill Inc., New York.
- Olavarrieta, S. and Friedmann, R., (2008), "Market orientation, knowledge-related resources and firm performance", *Journal of Business Research*, Vol.61 No.6, pp. 623-630.
- Olson, E., Slater, S. and Hult, G., (2005), "The Performance implications of fit among business strategy, marketing organization structure, and strategic behavior", *Journal of Marketing*, Vol.69 No.3, pp. 49-65.
- O'Regan, N., Ghobadian, A. and Sims, M., (2006), "Fast tracking innovation in manufacturing SMEs", *Technovation*, Vol.26 No.2, pp. 251-261.
- Paladino, A., (2008), "Analyzing the Effects of Market and Resource Orientations on Innovative Outcomes in Times of Turbulence", *Journal of Product Innovation Management*, Vol.25 No.6, pp. 577-592.
- Paladino, A., (2007), "Investigating the drivers of innovation and new product success: A comparison of strategic orientations", *Journal of Product Innovation Management*, Vol.24 No.6, pp. 534-553.
- Pelham, A., (2000), "Market orientation and other potential influences on performance in small and medium-sized manufacturing firms", *Journal of Small Business Management*, Vol.38 No.1, pp. 48-67.
- Pelham, A., (1999), "Influence of environment, strategy, and market orientation on performance in small manufacturing firms", *Journal of Business Research*, Vol.45 No.1, pp. 33-46.
- Pelham, A., (1997), "Mediating influences on the relationship between market orientation and profitability in small industrial firms", *Journal of Marketing Theory and Practice*, Vol.5 No.3, pp. 55-77.
- Pelham, A. and Wilson, D., (1995), "A Longitudinal Study of the Impact of Market Structure, Firm Structure, Strategy, and Market Orientation Culture on Dimensions of Small-Firm Performance", *Journal of the Academy of Marketing Science*, Vol.24 No.1, pp. 27-43.
- Penrose, E., (1959), *The theory of growth of the firm*. Blackwell, Oxford.

- Petrini, B.F. and Grub, P.G., (1973), "Product management in high technology defense industrial marketing", *California Management Review*, Vol.15 No.3, pp. 138-147.
- Porter, M., (1980), *Competitive Strategy*. New York Magazine, New York.
- Priem, R.L. and Butler, J.E., (2001), "Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?", *Academy of Management Review*, Vol.26 No.1, pp. 22-40.
- Quelch, J., Farris, P. and Oliver, J., (1992), "The product management audit: design and survey findings", *The Journal of Product and Brand Management*, Vol.1 No.4, pp. 21-34.
- Roach, D.C., (2011b), "The Impact of Product Management on SME Firm Performance", *Journal of Research in Marketing and Entrepreneurship*, Vol.13 No.1, pp. 1-22.
- Roach, D.C., (2011a), "The Impact of Product Management on SME Performance - Evidence from Canadian Firms", *Journal of Small Business and Enterprise Development*, Vol.18 No.4
- Rodriguez, C., Carrillat, F. and Jaramillo, F., (2004), "A meta-analysis of the relationship between market orientation and business performance: evidence from five continents", *International Journal of Research in Marketing*, Vol.21 No.2, pp. 179-200.
- Rosenbusch, N., Brinckmann, J. and Bausch, A., (2010), "Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs", *Journal of Business Venturing*, Vol.26 No.4, pp. 441-457.
- Sands, S., (1979), "Is the product manager obsolete?", *Business Quarterly*, Vol.44 No.3, pp. 30-38.
- Sarasvathy, S.D., (2001), "Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency", *Academy of Management Review*, Vol.26 No.2, pp. 243-263.
- Sarasvathy, S.D. and Dew, N., (2005), "New market creation through transformation", *Journal of Evolutionary Economics*, Vol.15 No.5, pp. 533-565.
- Sherman, D.J., Berkowitz, D. and Souder, W.E., (2005), "New product development performance and the interaction of cross-functional integration and knowledge management", *Journal of Product Innovation Management*, Vol.22 No.5, pp. 399-411.
- Shoham, A., Rose, G.M. and Kropp, F., (2005), "Market orientation and performance: a meta-analysis", *Marketing Intelligence & Planning*, Vol.23 No.4/5, pp. 435-454.
- Simon, S., Stats: what is an alpha level? Available: <http://www.childrens-mercy.org/stats/definitions/alpha.htm> Published 08/12/2005.
- Singh, J., (1998), "Striking a balance in boundary-spanning positions: An investigation of some unconventional influences of role stressors and job characteristics on job outcomes of salespeople", *Journal of Marketing*, Vol.62 No.3, pp. 69-86.

- Skilton, P.F. and Dooley, K.J., (2010), "The effects of repeat collaboration on creative abrasion", *The Academy of Management Review*, Vol.35 No.1, pp. 118-134.
- Slater, S. and Narver, J.C., (1999), "Market-oriented is more than being customer-led", *Strategic Management Journal*, Vol.20 No.12, pp. 1165-1168.
- Slater, S.F. and Narver, J.C., (1998), "Research notes and communications customer-led and market-oriented: Let's not confuse the two", *Strategic Management Journal*, Vol.19 No.10, pp. 1001-1006.
- Slater, S.F. and Narver, J.C., (1995), "Market orientation and the learning organization", *Journal of Marketing*, Vol.59 No.3, pp. 63-74.
- Smallbone, D., Leig, R. and North, D., (1995), "The characteristics and strategies of high growth SMEs", *International Journal of Entrepreneurial Behaviour Research*, Vol.1 No.3, pp. 44-62.
- Souder, W.E. and Song, X.M., (1997), "Contingent product design and marketing strategies influencing new product success and failure in US and Japanese electronics firms", *The Journal of Product Innovation Management*, Vol.14 No.1, pp. 21-34.
- Srivastava, R.K., Fahey, L. and Christensen, K.H., (2001), "The resource-based view and marketing: the role of market-based assets in gaining competitive advantage", *Journal of Management*, Vol.27 No.6, pp. 777-802.
- Stock, R.M., (2006), "Interorganizational teams as boundary spanners between supplier and customer companies", *Academy of Marketing Science Journal*, Vol.34 No.4, pp. 588-599.
- Stock, R.M. and Zacharias, N.A., (2010), "Patterns and performance outcomes of innovation orientation" *Journal of the Academy of Marketing Science*, available: <http://www.springerlink.com/content/735u74017gtj7018/>, Published on-line 28-September 2010, Greenvale, N.Y.
- Strieter, J., Gupta, A.K., Raj, S.P. and Wilemon, D., (1999), "Product management and the marketing of financial services", *International Journal of Bank Marketing*, Vol.17 No.7, pp. 342-354.
- Sun, H. and Zhang, P., (2008), "An exploration of affect factors and their role in user technology acceptance: Mediation and causality", *Journal of the American Society for Information Science and Technology*, Vol.59 No.8, pp. 1252-1262.
- Teece, D., Pasino, G. and Shuen, A., (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol.18 No.7, pp. 509-533.
- Tenenhaus, M., Vinzi, V., Chatelin, Y. and Lauro, C., (2005), "PLS path modeling", *Computational Statistics Data Analysis*, Vol.48 No.1, pp. 159-205.
- Tushman, M.L. and Scanlan, T.J., (1981a), "Boundary spanning individuals: their role in information transfer and their antecedents", *Academy of Management Journal*, Vol.24 No.2, pp. 289-305.

- Tushman, M.L. and Scanlan, T.J., (1981b), "Characteristics and external orientations of boundary spanning individuals", *Academy of Management Journal*, Vol.24 No.1, pp. 83-97.
- Tyagi, R.K. and Sawhney, S.S., (2010), "High-performance product management: The impact of structure, process, competencies, and role definition", *Journal of Product Innovation Management*, Vol.27 No.1, pp. 83-96.
- Ulsay, C. and Teach, R.D., (2008), "Research Note: Marketing/entrepreneurship interface research priorities (2010-2012)", *Journal of Research in Marketing and Entrepreneurship*, Vol.10 No.1, pp. 70-75.
- Venkatesh, A. and Wilemon, D.L., (1976), "Interpersonal influence in product management", *Journal of Marketing*, Vol.40 No.4, pp. 33-40.
- Verhees, F. and Meulenbergh, M., (2004), "Market orientation, innovativeness, product innovation, and performance in small firms", *Journal of Small Business Management*, Vol.42 No.2, pp. 134-154.
- Vermeulen, P., (2005), "Uncovering barriers to complex incremental product innovation in small and medium-sized financial services firms", *Journal of Small Business Management*, Vol.43 No.4, pp. 432-452.
- Walsh, M.F., (2009), "The role of the marketing function in small and medium sized enterprises", *Journal of Small Business and Enterprise Development*, Vol.16 No.4, pp. 569-585.
- Wang, C. and Ahmed, P., (2007), "Dynamic capabilities: A review and research agenda", *International Journal of Management Reviews*, Vol.9 No.1, pp. 31-51.
- Wernerfelt, B., (1984), "A resource-based view of the firm", *Strategic Management Journal*, Vol.5 No.2, pp. 171-180.
- Wichman, W., (1986), "Marketing commentary: the case for product management", *United States banker*, Vol.95 No.8, pp. 36-42.
- Wikipedia, contributors, Financial Crisis of 2007-2010, Accessed: 2010.
- Wolff, J.A. and Pett, T.L., (2006), "Small-firm performance: Modeling the role of product and process improvements", *Journal of Small Business Management*, Vol.44 No.2, pp. 268-284.
- Wood, V. and Tandon, S., (1994), "Key components in product management success (and failure)", *The Journal of Product Brand Management*, Vol.3 No.1, pp. 19-38.
- Woodcock, D., Mosey, S. and Wood, T., (2000), "New product development in British SMEs", *European Journal of Innovation Management*, Vol.3 No.4, pp. 212-222.
- Yoo, Y. and Alavi, M., (2001), "Media and group cohesion: Relative influences on social presence, task participation, and group consensus", *MIS Quarterly*, Vol.25 No.3, pp. 371-390.

Zahra, S., Sapienza, H. and Davidsson, P., (2006), "Entrepreneurship and dynamic capabilities: a review, model and research agenda", *The Journal of Management Studies*, Vol.43 No.4, pp. 917-955.

Appendix – Copyright waiver forms

July 8, 2011

Journal of Small Business and Enterprise Development
Birmingham, West Midlands
B42 2SU United Kingdom

I am preparing my PhD thesis for submission to the Faculty of Graduate Studies at Dalhousie University, Halifax, Nova Scotia, Canada. I am seeking your permission to include a manuscript version of the following paper as a chapter in the thesis:

Roach, David C., 2001, THE IMPACT OF PRODUCT MANAGEMENT ON SME PERFORMANCE: EVIDENCE FROM CANADIAN FIRMS, Journal of Small Business and Enterprise Development, Volume 18, Issue 4.

Canadian graduate theses are reproduced by the Library and Archives of Canada (formerly National Library of Canada) through a non-exclusive, world-wide license to reproduce, loan, distribute, or sell theses. I am also seeking your permission for the material described above to be reproduced and distributed by the LAC(NLC). Further details about the LAC(NLC) thesis program are available on the LAC(NLC) website (www.nlc-bnc.ca).

Full publication details and a copy of this permission letter will be included in the thesis.

Yours sincerely,

David C. Roach

Permission is granted for:

- a) the inclusion of the material described above in your thesis.
- b) for the material described above to be included in the copy of your thesis that is sent to the Library and Archives of Canada (formerly National Library of Canada) for reproduction and distribution.

Name: MATT BURTON Title: PUBLISHER
Signature: _____ Date: 22/8/2011

August 4, 2011

Dr. Jonathan Deacon
Editor, Journal of Research in Marketing and Entrepreneurship
Newport, South Wales
NP18 3QT United Kingdom

I am preparing my PhD thesis for submission to the Faculty of Graduate Studies at Dalhousie University, Halifax, Nova Scotia, Canada. I am seeking your permission to include a manuscript version of the following paper as a chapter in the thesis:

THE IMPACT OF PRODUCT MANAGEMENT ON SME FIRM PERFORMANCE, Journal of Research in Marketing and Entrepreneurship, Volume 13, Number 1.

Canadian graduate theses are reproduced by the Library and Archives of Canada (formerly National Library of Canada) through a non-exclusive, world-wide license to reproduce, loan, distribute, or sell theses. I am also seeking your permission for the material described above to be reproduced and distributed by the LAC(NLC). Further details about the LAC(NLC) thesis program are available on the LAC(NLC) website (www.nlc-bnc.ca).

Full publication details and a copy of this permission letter will be included in the thesis.

Yours sincerely,

David C. Roach

Permission is granted for:

- a) the inclusion of the material described above in your thesis.
- b) for the material described above to be included in the copy of your thesis that is sent to the Library and Archives of Canada (formerly National Library of Canada) for reproduction and distribution.

Name (PRINT): J. H. DEACON Title: EDITOR JRM&E.
Date: 05:08:11