Enhancing Innovativeness

Roach, David; Ryman, Joel; Ryman, Hannah; Jones, Rosalind

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ENHANCING INNOVATIVENESS:
THE ROLE OF DYNAMIC MARKETING CAPABILITIES

David Roach
Dalhousie University
Joel Ryman
East Tennessee State University
Rosalind Jones
Birmingham University
Hannah Ryman
Clemson University

Abstract:

The gap between the relatively static marketing resources of the firm and their turbulent marketplace is growing in importance for both practitioners and academics alike. This paper explores how marketing capabilities, specifically market orientation, work synergistically with other organizational capabilities to form dynamic marketing capabilities that enhance firm innovativeness. Findings indicate that a tight integration between the technical and marketing functions of the firm creates a fertile transformation point where market orientation infuses the innovation process. Market orientation interacts with these integrated capabilities to form a dynamic marketing capability that enhances the organization's response to the marketplace through innovation. Implications include how these dynamic marketing capabilities differ between service and manufacturing firms, where only the cultural aspects of market orientation enhance performance in service firms.

Marketing Orientation (MO) with its extensive pedigree in the academic literature is generally agreed to be a core capability of modern organizations. Marketing and innovation have also enjoyed a strong link within the management literature, with many authors investigating the relationship between these two fundamental capabilities (Morgan *et* al., 2009; Ketchen *et* al., 2007; Hult *et* al., 2005; Hult & Ketchen, 2001). This relationship goes beyond merely the academic literature, with practitioners often suggesting that these are the basic functions of the business enterprise. According to Drucker (1954), an orientation towards marketing involves knowing and understanding the customer, while innovation is the ability to provide a different product (or service), which ultimately creates new satisfaction. This occurs through a process of establishing current and future customer needs, which ultimately shape the nature and scope of innovation and new product development (Bruni & Verona, 2009; Fang & Zou, 2009). These symbiotic capabilities must be integrated into the organizational fabric of the firm through a process of generation and absorption of market knowledge. Thus, the integration of marketing and technical functions becomes a critical aspect of creating new satisfaction.

Market orientation (MO) thus acts as necessary (but not sufficient) source of market understanding (Barrales-Molina, 2013) required to sense and exploit opportunity through innovation. Day (2011) argues that the ability to sense and respond to market input occurs when the organization embeds a "robust market orientation" with an organizational structure that is suitably aligned with their environment. Day's contention implies that MO alone is not sufficiently "dynamic", but must be combined with complementary "organizing" capabilities that eliminate barriers within the organization. Reducing these internal barriers enables the firm to respond more quickly and effectively to market opportunities. Menguc and Auh (2006) similarly assert that MO acts as a kind of catalyst that when combined with other firm-level capabilities, produces marketing capabilities that are more dynamic in nature.

They stress that more investigation is required into organizational structures and mechanisms that enhance or constrain the creation of dynamic capabilities.

Increasingly, researchers are calling for improved understanding of the arrangement of capabilities that enable firms to adapt to increasingly challenging competitive contexts (Merrilees, Rundle-Thiele & Lye, 2011, Zahra, S.A. & George, G., 2002). As a result, a gap between the relatively static marketing resources of the firm and the fast moving-turbulence of the marketplace appears to be growing. These turbulent environments (sometimes referred to a dynamic) may heighten the need for firms to evolve dynamic capabilities, but are not a prerequisite for their formation. If organizations are to close this gap, existing marketing capabilities must become more dynamic in nature (Day, 2011; Bruni & Verona, 2009; Morgan, 2012). This begs the important questions; which marketing capabilities are considered to be "dynamic" and how are they formed? To date, little research in this area has been carried out in the mainstream management and marketing literature. This is surprising given that marketing for growth-oriented firms presents particular challenges, most notably how to combine limited resources in synergistic ways to innovate and compete.

This paper delves into the connection between marketing and innovation in order to explore how marketing capabilities (specifically market orientation), work in synergistic ways with other competencies to form dynamic marketing capabilities . This research explores the interaction of market orientation and what has been referred to as "spanning" (Day, 1994, 2011) or "enabler" capabilities (Barrales-Molina *et* al., 2013) of the firm. These capabilities enable the creation of dynamic capabilities by systematically combining marketing capabilities with other organizational capabilities for the purpose of absorbing and managing market knowledge. This infusion of market knowledge within (and between) the functional silos of the organization becomes a driver of the innovation process, enhancing the innovation capability of the firm. This integration of capabilities is dynamic in nature since it

allows the firm to actively reconfigure its innovation activities based on the assimilation of market knowledge. In this infusion process MO is not the driver of innovation, but amplifies the performance of well-integrated marketing and technological factions of the organization, creating a dynamic marketing capability.

This paper reports on a comparative study of 553 Canadian manufacturing and technical services SMEs and explores the effectiveness of integration capabilities between marketing and technological functions of the firm. The study develops and tests a hypotheses-driven model, which investigates of the moderating effect of market orientation on the relationship between marketing-technological integration (MTI), innovation and ultimately, firm performance.

The following sections develop the theory, conceptual framework and related hypotheses. The research methodology and measures are then described and the results explained. The paper concludes with both theoretical and practical implications within the context of the limitations of the study.

THEORY AND HYPOTHESES

The Resource-based Theory (RBT) has traditionally provided an appropriate theoretical foundation to examine the role of marketing capabilities in building and sustaining competitive advantage (Barney *et* al., 2011; Kozlenkova *et* al., 2013). However the RBT has been criticized as being inherently internally-focused and static in nature (Priem & Butler, 2001; Kozlenkova *et* al., 2013) and therefore too limited for the turbulent marketplaces of today (Teece, 1997; Priem & Butler, 2001; Day, 2011). In response to the limitations of the RBT, the dynamic capabilities perspective has been offered as a more appropriate framework for complex and turbulent markets, which require the constant renewal of the organization

through the reconfiguration of firm level resources (Teece *et* al., 1997, Ambrosini & Bowman, 2009; Winter, 2003; Zollo & Winter, 2002).

The early dynamic capabilities literature (Teece *et* al., 1997) emphasized the importance of cross-functional activities as foundational to the development of DCs. The integration of market capabilities with various other functions has led to the increasing recognition that marketing capabilities play an integral role in the forming of DCs (Fang & Zou, 2009; Menguc & Auh, 2006). Out of this area of research, the concept of dynamic marketing capabilities (DMCs) has emerged (Bruni &Verona, 2009) and has gained traction in subsequent papers (Barrales-Molina *et* al., 2013; Morgan, 2012). DMCs differ from other dynamic capabilities in that they are primarily concerned with the collection and absorption of market knowledge as well as its integration into the rest of the organization. Defined, DMCs are the "... human capital, social capital and the cognition of managers involved in the creation, use and integration of market knowledge and marketing resources in order to match and create market and technological change" (Bruni & Verona, 2009; 103). The distinguishing feature of DMCs from other DCs is their use of market knowledge to renew the organization through technological change, i.e. innovation (Bruni & Verona, 2009; Fang & Zou, 2009; Dacko *et* al., 2008; Menguc & Auh, 2006).

The market orientation construct (MO) has been regarded as the essential embodiment of the marketing function, and the DC literature has recognized the importance of MO in the development of DCs (Crittenden *et* al., 2011; Fang & Zou, 2009; Menguc & Auh, 2006). However, on the question of whether MO is itself a DC, the literature indicates that MO is a necessary but *not* a sufficient condition for generating a DC (Barrales-Molina, 2013). Day (2011) argues that MO is not essentially dynamic in nature and must be combined with other organizational capabilities to enhance the organization's vigilance. Vigilance is "...a heightened state of awareness, characterized by curiosity, alertness and willingness to act on

partial information" (Day 2011; 188). Vigilant learning enables organizations to sift through the environmental complexity and "noise" enabling them to "see" sooner (Day & Schoemaker, 2006; Fiol & Conner, 2003). Vigilant organizations not only have a strong market orientation that ''...sensitizes them to making decisions from the 'outside-in' '' (Day, 2011:188), they also are good at surfacing insights and overcoming organizational filters and biases (i.e. internal organizational boundaries) that inhibit real insight. They also understand that market learning is not complete until these insights are accurately interpreted and then disseminated throughout the organization. Therefore, in vigilant organizations, the elimination of internal boundaries remains a critical capability requiring a cross functional alignment of the organization. This alignment enables it to infuse market insights and timely decision making into the strategy making processes. For this to occur, MO must be complemented with supportive organizational capabilities whereby barriers and biases are removed to allow deep market insights to be formed, shared and acted upon (Day, 2011).

Barrales-Molina *et* al. (2013) identify these complementary supportive organizational capabilities that promote the absorption and management of market knowledge as "enabler" processes. While these enabler processes also promote external collaborations such as customer relationship management (Fang & Zou, 2009), alliance and external network building (Fang & Zou, 2009; Griffith & Harvey, 2001), the focus of this research is on internal network development (Song *et* al., 2005) or, what Day (1994, 2011) refers to as spanning capabilities. These internal enabler processes promote access within the organization to market knowledge (generated through the marketing function) and stimulate organizational learning wherein deep market insights can be formed, shared and ultimately, integrated into other organizational capabilities. It is important to note that these enabler processes are not DCs, but are instrumental to the development of DCs. Thus, by themselves internal enabler processes remain static in nature and limited in their ability to sense and

respond (Day, 2011). However, enabler processes are cross-functional in nature and represent a critical point of integration within the organization, and when combined with the sensing capabilities of MO, become a point of transformation (Lado *et* al., 1992).

Within the context of this study, the integration of the marketing and technical functions of the organization represent an "enabler" capability residing in an intermediate position linking 'outside-in' capabilities (marketing) with 'inside-out' capabilities (technical) (Day, 2011;1994). It is at this nexus that MO interacts with these enabler capabilities to form a DMC by combining its sensing capabilities with the learning, integrating and coordinating capabilities (Teece *et* al., 1997) resident in the integration of the marketing and technical functions. We argue that the combined MO and enabler capabilities comply with the requisite qualities of a DMC as outlined by Barrales-Molina *et* al. (2013: 6): (1) The marketing area has a strong influence on this construct, (2) market knowledge is a fundamental 'raw material' in developing this construct, (3) this construct is a tool to disseminate market knowledge within the organization, and (4) this construct implies inter-functional coordination within the organization. These combined capabilities form a DMC and enable the organization to sense and seize opportunity to establish a position in the market as a customer value leader through its innovation activities (Day, 2011) and enjoy superior organizational performance.

In this paper, we examine Day's (2011) assertion that MO is not essentially dynamic in nature and must therefore be combined with other organizational capabilities to enhance its dynamic qualities. In doing this, we also explore how dynamic capabilities are formed. To do this, we explore the synergistic effect of MO on the relationship between the integration of marketing and technical functions, and innovativeness. While we also argue that a firm's MO and the integration of marketing and technical functions both have direct effects on firm innovativeness. The essential concept presented is that MO acts in synergistic ways when

combined with integration capabilities to enhance organizational performance. This in turn augments the organization's ability to sense and respond through innovation. Thus we expect that MO will moderate the relationship between marketing-technical integration and innovativeness.

The following model is proposed:

Place Figure 1 about here

Hypothesis Development

Marketing - technical integration (MTI) and innovativeness. Day (1994; 2011) highlights the critical importance of capabilities, which link the 'outside-in' capabilities with the 'inside-out' capabilities and represent a critical point of integration within the organization. Given the gap that exists between the requirements of a turbulent and complex marketplace, internal boundary spanning remains a critical capability because it facilitates the cross-functional alignment of the customer-focused organization enabling it to infuse the product/service development processes with market insights.

Much has been written about cross-functional coordination, specifically within product development teams (McDonough III, 2000; Sherman, Berkowitz & Souder, 2005). 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 and transferring valuable knowledge and know-how (Marrone, Tesluk & Carson, 2007). Thus 'there appears to be a consensus that organizational integration across functional and disciplinary specialities drives superior firm capabilities' (Bruhl *et* al. 2011, Hsu, Wang & Tzeng, 2007: 1133).

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 (Roach 2011). Some researchers split 'integration' into two dimensions, namely interaction and collaboration, with the former characterized by formal information flows and meetings, while the latter refers to the ability to collectively work towards a common goal (Kahn, 1996; 2001).

Marketing and technical integration reflects the interaction between the marketing and technical factions of the firm. It relates 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/service initiatives such as concept generation, refinement and development. This cross functional capability enhances the firm's product-market fit, which should lead to innovation that creates value for the customer (Lado *et* al., 1992). Thus, the hypothesis we put forward proposes that:

> *H1: The integration of the marketing and technical functions is positively related to innovativeness.*

Market orientation and innovativeness. MO was initially operationalized through the works of Kohli and Jaworski (1990) and Narver and Slater (1990). Narver and Slater (1990) view MO as cultural in nature, where the firm's commitment to the customer is embedded in the shared values and norms of the organization, while Kohli and Jaworski (1990) look to a firm's behaviour as evidence of a MO, focusing on the market information processes (Hult, Ketchen & Slater, 2005) that gather and disseminate information on customers and competitors throughout the organization.

There has been significant debate in the literature regarding which conceptualization is most appropriate (Raaij & Stoelhorst, 2008), however recently there has been a recognition

that considering MO from only one perspective to exclusion of the other fails to capture the important and instructive nuances of this construct. With this in mind, Kirca *et* al. (2011) conceptualize MO as having both a behavioural and cultural component, which they respectively refer to as MO implementation and MO internalization. On the behavioural side, they define MO from an organizational learning perspective as "...the development of behaviours related to the generation and dissemination of market information and responsiveness to it in organizations" (Kohli & Jaworski, 1990; Kirca *et* al., 2011: 146). These are the tangible and observable behaviours manifest in the processes within the organization related to gathering and disseminating market information related to customers and competitors. On the cultural side, MO internalization refers to the values and norms related to the organization's commitment to the creation of customer value (Narver & Slater, 1990). These shared values and norms shape the implementation of MO by providing the normative boundaries within which individuals in the organization coordinate their decisions and behaviours and determine the processes through which organizational learning occurs (Kirca *et* al., 2011). The internalization of MO is potentially a powerful organizational capability because it creates an organizational mindset in which organizational members view MO as a "taken for granted" part of organizational identity.

The attentive and responsive posture towards the customer shared through the internalization of MO, along with the diligent generation and dissemination of market intelligence provided by the careful implementation of MO, enables organizations to identify customer needs and respond with new products or services, often in anticipation of their customers' needs (Narver *et* al., 2004; Srivastava, Fahey & Christensen, 2001). Innovation of this nature, derived from a firm's market orientation, creates value for customers through products or services which offer superior quality, design or technology. Deshpandé *et* al. (1993), in their research relating MO to organizational innovation, conclude that customer

oriented, innovative firms outperform their counterparts. These findings may be especially significant for small, entrepreneurial firms as they frequently have a greater focus and contact with customers and offer flexibility and adaptability, as long as these are complemented by entrepreneurial values and appropriate business processes (Pelham, 1999; Pelham, 2000; Hills, Hultman & Miles, 2008). Thus, we would expect that market oriented firms will likely show greater levels of innovativeness. Thus, the hypothesis we put forward proposes that:

H2: Market orientation is positively related to innovativeness.

The moderating effect of market orientation on marketing-technical integration and innovativeness. The distinguishing feature of DMCs from other DCs is their use of market knowledge to renew the organization through technological change, i.e. innovation (Bruni & Verona, 2009; Fang & Zou, 2009; Menguc & Auh, 2006). The essential concept presented is that the sensing capabilities of MO combined with the learning, integrating and coordinating capabilities resident within the integration of the marketing and technical functions, results in the formation of a DMC. For the sensing capabilities to generate and integrate the deep market insights required, both dimensions of MO must work synergistically within the integrated marketing and technical functions.

The internalization of MO emphasizes that the desire of an organization to create superior value for customers will create an underlying culture that will produce the behaviours necessary to accomplish this goal. Those organizations that possess such a strong cultural underpinning will see this desire permeate each of the processes, even those that are traditionally internally focused, thereby 'pulling' them towards an external and market oriented perspective (Day, 1994). Internal processes are critical linkages because they act as the conduit through which these values are shared and imbedded into the fabric of the

organization. In turn, their effectiveness will further reinforce this internalization of MO leading to a strong customer-focused identity.

Likewise from a MO implementation perspective, the tangible processes that gather market information (Kohli & Jaworski, 1990) provide market insights that enable the organization to better align its technology development efforts with the market. Through the formal and informal interactions between the marketing and technical functions, this market oriented culture is nurtured and strengthened. In this way, MO synergistically links marketing technical integration capabilities with technology development capabilities and enhances the ability of market oriented firms to create value for its customers through innovation. As a result we expect that both dimensions of MO, Implementation and Internalization, will moderate the relationship between marketing technical integration and innovativeness. Thus, the hypothesis we put forward proposes that:

> *H3: The interaction between an organization's market orientation and its marketing and technical integration is positively related to innovativeness.*

Innovativeness and firm performance. Researchers have frequently investigated the relationship between firm innovativeness and market orientation; with most concluding that market orientation acts as an antecedent to innovativeness in a complex relationship that leads to value creation and firm performance (Atuahene-Gima, 1996; Deshpandé & Farley, 2004; Hult *et* al., 2004; Paladino, 2007). Deshpandé & Farley (2004) confirmed from their multi-country, multi-industry perspective that MO and innovativeness have a consistent positive impact on performance irrespective of industry type. Rosenbusch, Brinckmann & Bausch (2010) in their meta-analysis of 42 SMEs found that the innovation-performance relationship is context dependent. This first quantitative aggregation of empirical findings for SMEs investigated the effects of type of innovation, cultural context and firm age. Their findings suggest that there are three different types of innovation antecedents to firm

performance, namely innovation orientation, innovation process inputs and innovation outputs.

An innovation oriented culture is thus required to attract and bind context dependent resources to the firm (Rosenbusch *et* al., 2010), which should be reflected in overall increase in firm performance. This is corroborated in much of the SME literature, where a strong and influential relationship with performance is observed (Verhees & Meulenberg, 2004; Wolff & Pett, 2006). Building on Rosenbusch *et* al. (2010), Paladino (2007) and Gatignon & Xureb (1997), innovativeness is conceptualized as a firm-level orientation, where innovation is driven by superiority of products/services relative to competitors. The authors believe this conceptualization aligns well with Drucker's (1954) original concept of "economic satisfaction" by creating a new potential of satisfaction through value creation. We would expect that innovativeness positively effects overall firm performance. Thus, the hypothesis we put forward proposes that:

H4: Innovativeness is positively related to firm performance.

METHODS

The following section presents the method deployed in testing the research hypotheses.

Sample and data collection

The developed hypothesis was tested using a sample of Canadian SMEs engaged in manufacturing and professional technical services. For the purpose of this study, SMEs are defined as (a) having greater than 5 and less than 250 employees or (b) less than CDN $50M in revenue, and (c) were stand alone enterprises (i.e. not subsidiaries of larger entities). 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).

Place Table 1 about here

The method of data collection was a self-reported online survey issued to key respondents namely, entrepreneurs or senior managers of SMEs (for example, General Managers through to CEOs). Respondents were asked to provide their opinion on a number of generic statements related to MO and innovation (see Table 2). Questions were randomized using a 7-point Likert scale from 'disagree completely' to 'agree completely'. Finally, respondents were asked to describe their experience in their industry, their company and what best described their management position within their organization. This method resulted in a 625 good responses of which 72 were deselected, since they indicated that they had less than 5 employees or greater than 250 employees. Micro firms (i.e. less than 5 employees) were removed since they were considered too small to display effective boundary spanning, while firms with greater than 250 employees were not considered in this context. This left a useable sample of n=553, which translates into a response rate of 3.91% of the total population (N=14,132).

As Table 1 indicates, of these responses 301 (54.4%) were primarily producers of goods, while 252 (45.6%) were primarily suppliers of services. The respondents consisted of 383 (69.3%) Chief Officers, Presidents or Vice Presidents of their companies. When senior managers were included this increased to 515 (93.1%) of respondents. Of these respondents

399 (72.2%) had greater than 15 years of experience in their industry, while 321 (58.1%) had more than 20 years of industry experience.

Measures

The survey instrument used in this study was derived from existing scales for MO, innovation and cross functional integration.

Market Orientation. The MO measures used were developed by Deshpandé and Farley (1998) as a more parsimonious measure of the MO construct, aggregating the three most widely used measures of MO, namely Narver and Slater (1990), Jaworski and Kohli (1993) and Despandé *et* al. (1993). This 10-item scale has since been used extensively in subsequent studies (Baker & Sinkula, 2009; Narver *et* al., 2004). However, this research was interested in exploring the differential effects of the MO implementation and MO internalization on firm innovativeness, so subsequently the measure was factored into these two dimensions of MO.

Marketing and Technical Integration. Several researchers have developed measurement scales, which include such activities as level of contact, information flow and involvement in problem definition (Kahn, 1996; 2001; Sherman *et* al. 2005; Souder & Song, 1997). Inter-functional coordination also has a historic relationship with MO dating back to Narver and Slater (1990) who identify this construct as one of the three constructs of MO. Using their definition, cross-functional integration refers to the communication and coordination of business functions to enhance customer value.

The primary research objective however is to measure the integration capability of the firm, rather than cross-functional coordination, which attempts to quantify the coordination of resources and information. Measures employed reflect the level of horizontal integration based on involvement, communication and participation. These activities are distinct from

tacit team processes normally attributed to cross-functional coordination, such as work coordination, goal setting and management of conflict. Thus, for the purpose of this study, the integration between the marketing and technical functions of the organization is measured using a marketing and technical integration scale based on Roach (2011), which acknowledges horizontal integration based on involvement, communication and participation.

Innovativeness. Innovation is a multi-dimensional phenomenon, with researchers using various concepts within the literature to analyze the impact of innovativeness on performance (Rosenbusch *et* al., 2010). Numerous labels have been used to describe innovativeness throughout the literature, including such things as product orientation and technological orientation (Garcia & Calantone, 2002; Grinstein, 2008), new ideas, products, services, processes and quality (Han, Kim & Srivastava, 1998). 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: 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). For the purposes of this study, firm-level innovativeness was used and refers to the firm's ability to adopt new ideas, products and processes successfully. This innovativeness scale, which tends to favor the cultural aspects of the firm in an effort to quantify innovation behaviours, was adapted from a seven-item scale by Paladino (2007) based on earlier work by Gatignon and Xureb (1997). These measures were refined into a four-item scale, which reflect the behavioural ability to produce superior product/service relative to competitors**.**

Organizational Performance. Lastly, performance was measured using multiple subjective measures of global performance. Many researchers believe that single objective measure of

performance does not adequately provide a valid measure of performance (Olson, Slater & Hult, 2005; Pelham, 1997; Rodriguez, Carrillat & Jaramillo, 2004). Thus, multiple dimensions of performance are recommended in order to avoid the close relationship between some market oriented behaviours (Pelham, 1997), although Rodriguez *et* al. (2004) suggest that subjective measures do yield higher market orientation-performance correlations than objective measures of performance. Several authors do however point to a strong correlation between objective performance data and subjective assessments of performance by key informants (Olson *et* al., 2005). Thus, six subjective performance measures of growth and profitability are used to establish firm performance for this study (see Table 2).

Data Analysis

The authors conducted two separate principle components analysis (SPSS, 2010). Due to the fact that the Deshpandé and Farley (1998) market orientation scale used in this study is an aggregation of widely used measures of MO (Jaworski & Kohli, 1993; Narver & Slater, 1990), the first factor analysis was used to combine these measures into two factors to distinguish between MO Implementation and MO Internalization. The second principle components analysis was conducted for the remaining variables. As Table 2 indicates, the data broke cleanly into the remaining 3 factors; firm performance, marketing and technical integration, and innovativeness. All of the factor loadings exceed .50 indicating that each measure is empirically distinct from the others. In addition, organizational size was controlled based on number of employees by including 4 dummy variables which correspond to the following size categories: Emp3 = 5-25 employees, Emp4 = 25-50 employees, Emp5 =50-100 employees, and Emp6 = 100-250 employees. These categorizations correspond to the format of the employment size categories of the Canadian Company Capabilities (CCC) database.

Place Table 2 about here

To test the hypotheses, hierarchical moderated regression analysis was utilized (Aiken & West, 1991). The following section summarizes the results of the analyses.

Results

Descriptive statistics and the Pearson correlation matrix are included in Table 3a for manufacturers and Table 3b for technical service firms. As these tables indicate, there is no significantly large correlation that indicates any concern over multicollinearity (Hanushek & Jackson, 1977). Table 4 shows the results of the hierarchical moderated regression analyses. Within these tables, Model 1 tests Hypothesis 1 and Hypothesis 2, while Model 2 tests for the moderating effect of MO on the relationship between marketing technical integration and innovativeness (Hypothesis 3). Table 5 shows the testing of Hypothesis 4, the influence of innovativeness on firm performance.

Place Tables 3a and 3b about here

Hypothesis 1 predicted a positive relationship between marketing and technical integration and innovativeness. The results of the analysis indicated that for both manufacturers (beta = .22, $p<.001$) and technical service firms (beta = .25, $p<.001$), marketing and technical integration is positively related to innovativeness. For Hypothesis 2, a positive relationship between MO and innovativeness was predicted. Differences were found depending on the type of MO. For manufacturers, both measures of MO

(Implementation and Internalization) were positively related to innovativeness (Implementation: beta = .12 p<.01 and Internalization: beta = .32, p<.001). For technical services firms only MO Internalization was positively related to innovativeness (beta = .31, p<.001). The variance inflation factors (VIFs) for the predictors were in all cases below 2 indicating that multicollinearity did not affect the analysis (Neter *et* al., 1985). Thus, Hypotheses 1 and 2 were supported.

Place Tables 4 and 5 about here

In Hypothesis 3, it was predicted that the level of MO would influence the relationship between marketing and technical integration and innovativeness with higher levels of MO amplifying (i.e. positively moderating) this relationship. The analysis indicated an interesting difference in the results in the two samples. For manufacturers, the interaction term for MO Implementation was significant (beta = .11, p < .05), while the MO Internalization interaction term remained inert. For technical services firms, the opposite occurred with the MO Internalization interaction term being positive and significant (beta = .12, p<.05) and not significant for MO Implementation. These findings may highlight the fundamental differences between manufacturing and service organizations and raise interesting questions related to the nature of MO in service organizations versus those in manufacturing organizations. It appears that in service firms with integrated marketing and technology capabilities, a market-oriented culture amplifies this relationship resulting in improved innovation performance.

Hypothesis 4 tests whether or not innovativeness is positively related to firm performance. The results of this analysis indicate support for Hypothesis 4 as innovativeness

is positively and strongly related to firm performance for both manufacturers (beta = .26, p<.001) and technical services firms (beta = .26, p<.001).

DISCUSSION

Summary

While the primary purpose of this research was to explore the interaction between MO and the integration capabilities of firms, important direct effects were observed and warrant discussion. The results of this study indicate that consideration of both dimensions of MO (i.e. cultural and behavioural) provides interesting insights into their different effects on innovativeness. Our findings indicate that in manufacturers, both the behavioural and cultural dimensions of MO are positively related to firm innovativeness, with the cultural dimension showing a stronger relationship than the behavioural one. Interestingly, for technical service firms, only the cultural dimension of MO is positively related to innovativeness. Our findings indicate that this cultural dimension, the underlying values and norms related to the organization's commitment to the creation of customer value (Narver & Slater, 1990), strongly influence innovativeness. Unfortunately, much of the MO oriented research has tended to embrace the behavioural dimension (Kohli & Jaworski, 1990) to the exclusion of the less tangible yet important cultural underpinnings of the construct (Narver & Slater, 1990). This internalization of a MO can build a strong identity within the organization that is focused on customer value creation. This leads the authors to propose that this cultural dimension directly provides a "dynamic" quality to the MO construct.

Despite these differential findings, on balance MO proved to be a strong predictor of innovativeness, which not only supports the mainstream market orientation literature (Hurley & Hult, 1998; Narver *et* al., 2004; Srivastava *et* al., 2001) but is reflective of SME findings (Pelham 1999; 2000). This may be partly due to the definition of innovativeness used as a

measure in this study (i.e. product/service superiority). The definition of innovativeness reflects a strong orientation to the market, customer and competitors.

This research also found that marketing and technical integration is a strong predictor of innovativeness, supporting the literature (Day 1994; 2011; Hsu *et* al., 2007; Kahn, 1996; 2001; McDonald III, 2000). From the perspective of this study, this integration is defined as the ability of the organization to truly span (or build the bridges) between functions. This goes beyond merely communicating information, but involves collaboration and participation at the working level in an equitable fashion. The authors believe that it is the difference between cross-functional *coordination* and cross-functional *integration*, with the former speaking to the collaborative efforts of the team, while the latter speaks to the level of assimilation. SMEs may be inherently better at this integration process given their small size, generally flatter organizational structures and propensity towards entrepreneurial culture and inter-related orientations (Jones & Rowley, 2011).

The nature of the integration capabilities go beyond simply sharing information but are truly assimilated may help provide insights into the focal relationship of this research; the interaction between MO, marketing-technical integration, and innovativeness. Our study found that MO amplifies the relationship between marketing and technical integration and innovativeness, but that there are differential influences depending on which dimension of MO is considered. In manufacturers, strong implementation of MO provides a catalyst, while in technical service firms, a strong internalization of MO worked in synergistic ways to enhance the relationship between marketing-technical capabilities and innovativeness. For manufacturers, market information related to customer needs and competitive alternatives is critical as they seek to establish leadership positions in the market. Therefore, formal systems and processes that gather and disseminate customer and competitive data will likely be the focus of these efforts. In service firms, technical and marketing activities may be intertwined

(i.e. delivered simultaneously) and hence the degree of integration may be higher. For instance, looking at examples of technical services such as information technology providers, the customer relationship and innovation occur at the same interface, within the same time frame, and likely with the same personnel. These innovation activities are inextricably linked to the marketing activities and thus the more highly integrated the functions are, the greater the result on the innovativeness of the firm. Our preliminary findings suggest that more research on the differential effects of the two dimensions of MO is warranted.

As a whole, the results of this study indicate that a tight integration of technical and marketing functions is a fertile point of transformation within the firm. It is at this juncture where a robust MO not only provides market knowledge, but also infuses the innovation process with a greater sensitivity to the customer. This sets in motion a process of learning where deep market insights can be generated and disseminated. These insights combined with integration capabilities break down organizational filters and biases that inhibit vigilant learning (Day, 2011). In this way, MO interacts with these capabilities to enhance the qualities of the marketing - technical integration, resulting in the formation of DMCs that enhances the organization's ability to sense and respond through innovation.

This research also found that innovativeness is a strong predictor of firm performance in both manufacturing and technical services firms. This provides additional evidence and confirms the large body of research findings on the positive effect of innovativeness on firm performance (Atuahene-Gima, 1996; Deshpandé & Farley, 2004; Hult *et* al. , 2004; Paladino, 2007) and SME research more specifically (Verhees & Meulenberg, 2004).

Lastly, this research sheds light on the spare and somewhat conflicting research on the comparative effects of MO on service and tangible goods organizations. It is generally agreed that MO is positively related to innovativeness and that this in turn positively affects performance. The nature of this relationship however is complex, with our study highlighting

that both cultural and behavioural aspects of MO influence overall performance in different ways. By separating the cultural and behavioural aspects of MO, our results indicate that a market-oriented culture appears to be a driver of performance specifically in service firms.

Contributions to Scholarship

Under research implications, Kirca *et* al., (2011) suggest that research must examine the antecedents of the MO-performance relationship, highlighting interdepartmental connectedness as a fertile topic for future research. They go on to push for best practices in both manufacturing and service firms, specifically examining the role of customization. This paper is a response to this call for research that explores the interaction of MO with the "organizing" capabilities of the firm that facilitate the creation of dynamic capabilities (Menguc & Auh, 2006). This is a fruitful area of research since DMCs are needed to enhance organizational vigilance and close the growing marketing capabilities gap that exists between the dynamic marketplace and the static resources of the firm (Day, 2011).

The implications of this study are wide ranging. First, this study furthers the investigation on how DMCs are formed. Through combining the sensing capabilities of MO with the integrating capabilities of the firm, innovativeness is enhanced creating a positional advantage that leads to superior performance (Day, 1994; Day, 2011; Day and Wensley, 1988; O'Cass and Ngo, 2012). Secondly, this research addresses practical issues, investigating integration activities and their relationship to marketing and innovation processes, needed to address the marketing capabilities gap. Currently, there is limited research as to how firms can address this gap from a resource-based perspective.

Third, by sampling both goods and services firms and testing both cultural and behavioural aspects of MO in our model, we were able to add to the literature on market orientation and service based organizations. Although research on the relationship of MO in

service firms is at best equivocal (Cano *et* al., 2004, Gray & Hooley 2002, Kirca *et* al., 2011), this may be partly due to the measure of MO used in these studies. Our results indicate that the cultural aspect of MO impacts service firms in particular. The reasons are wide ranging but include the fact that service firms tend to have more customer interactions than tangible goods firms and as a result tend to leverage more of their market orientation capability than manufacturing firms (Cano *et* al., 2004). Service firms by the nature of their business have a greater dependence on person-to-person interactions allowing them to maintain closer relationships with their customers (Gray & Hooley 2002). Unlike manufacturing firms where production and consumption are separated by time and space, the service firm's value proposition is more immediately tangible and as a result also more perishable. This gives way to a process of fulfilling customer needs with a higher level of customization than manufacturing firms, since value is often delivered at the same interface with the same personnel (Roach et. al 2011). Thus, this close and constant interaction with customers both leverages and reinforces the cultural aspect of the organization.

Applied Implications

From a practical perspective MO is a critical yet complex and multifaceted organizational capability that must be more thoroughly understood. Mainstream MO scales and the MO scales of Pelham (1999) developed for SMEs and in B2C contexts are unlikely to generate new insights into the role of innovation and integration capabilities. The MO relationship is strengthened in truly integrative cultures, where the marketing and technological factions behave as an integral unit. The ability to deploy this integration capability to the innovation process results in superior firm performance. This capability is difficult for competitors to replicate and thus can form the basis of a sustainable competitive advantage.

However, neither being culturally pre-disposed to a marketing orientation nor innovativeness is enough. Our study highlights that by having truly integrated marketing and technological functions of the firm that a market-oriented culture synergistically amplifies the relationship with performance. Although this seems to be beneficial to both suppliers of goods and services, it appears to have a most direct impact on service firms. Thus, all firms may be able to learn from a service-centric, market oriented model as a way to establish best-of-class practices for customer interaction. This may be at the core of how firms can build upon their static marketing abilities, by infusing their innovation competencies with market sensing capabilities, through a culture that dynamically integrates these value-creating aspects of the firm. In doing so, firms should be able to improve and/or optimize their performance.

Limitations and Future Research Directions

This study is exploratory in nature and thus care must be taken to not over-generalize the results. Future studies could benefit from exploring in more detail how market oriented behaviours and culture affect innovation within the firm. Exploring the cultural aspects of what drives the innovation – firm performance relationship would add to future studies. Also missing from this study is whether the size of the firm (small versus large organizations) in different industry sectors would affect the findings. For instance in this study we sampled technical service firms. Future research could benefit from examining other service sectors that may shed some light on our findings. In a similar manner, future research could benefit from more diverse measures of innovativeness. The innovativeness measures used in this study were based on indicators developed by Gatignon and Xureb (1997), a scale that embeds both cultural and behavioural indicators (Roach *et* al., 2016). Future research should in addition include the two other most widely used innovativeness scales namely, Calantone *et*

al. (2002) and Hurley and Hult, (1998), while considering aspects of service innovation (see Grawe, 2009) and cultural openness to new ideas (see Keskin, 2006). These could improve the innovation measures used in this study.

In addition, objective, quantifiable measures of performance (e.g. ROI, ROA, etc.) could be added to support the subjective measures of firm performance. Future research should address multiple dimensions of performance, which could reduce the potential bias believed to result from the close relationship between some MO behaviours and firm performance in SMEs (Pelham, 1997). Other significant effects such as the three most substantive moderators between market orientation and performance, namely market turbulence, technological turbulence and competitive intensity (Kirca *et* al., 2005; Langerak, 2003; Langerak *et* al., 2007) should also be investigated. For instance, technological turbulence should diminish the MO-performance relationship (Kirca *et* al., 2005), since firms tend to switch to R&D driven innovation rather than customer focused innovation. This research did not test this notion, but future research should address this gap. Neither has any attempt been made to link this research with organizational strategy type, as with some recent investigations into *product*-market fit and firm performance (Hughes & Morgan, 2008; Menguc & Auh, 2006). Lastly, controlling for industry categories using a more homogeneous population could also add additional insights to this area of research.

Overall, this research highlights the relationship of MO with integration capabilities as a fruitful area for further research into the emerging area of dynamic marketing capabilities.

REFERENCES

Aiken, L. & West, S. (1991) *Multiple regression: Testing and interpreting interactions.* London: Sage Publications**.**

Ambrosini, V., Bowman, C. & Collier, N. (2009). Dynamic capabilities: an exploration of how firms renew their resource base. *British Journal of Management*, 20: 9–S24.

Atuahene-Gima K. (1996). Market orientation and innovation. *Journal of Business Research,* 35(2), 93-103.

Baker, W. & Sinkula, J. (2009) The complementary effects of market orientation and entrepreneurial orientation on profitability in small businesses. *Journal of Small Business Management,* 47(4), 443-464.

Baretto, I. (2009) Dynamic capabilities: a review of past research and an agenda for the future. *Journal of Management,* 36(1), 256-280.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.

Barney, J., Ketchen, D. & Wright, M. (2011) The future of resource-based theory: revitalization or decline? *Journal of Management*, 37(5), 1299-1315.

Barrales-Molina, V., Martinez-Lopez, F.J. & Gazquez-Abad, J.C. (2013). Dynamic marketing capabilities: Toward an integrative framework. *International Journal of Management Reviews,* 10.1111/ijmr.12026

Bruhl, R., Horch, N., Osann, M. (2010), Improving integration capabilities with management control. *European Journal of Innovation Management***,** 13(4), 385-408.

Bruni, D.S. and Verona, G. (2009). Dynamic marketing capabilities in science-based firms: an exploratory investigation of the pharmaceutical industry. *British Journal of Management*, 20,101–117.

Calantone, R.J., Cavusgil, S. & Zhao, Y. (2002) Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management,* 31(6), 515-524.

Cano, C.R., Carrillat, F.A. 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*, *21*(2), 179-200.

Crittenden, V.L., Crittenden, W.F., Ferrell, L.K., Ferrell, O.C. & Pinney, C.C. (2011). Market-oriented sustainability: a conceptual framework and propositions. *Journal of the Academy of Marketing Science,* 39, 71–85.

Dacko, S.G., Liu, B.S., Sudharshan, D. & Furrer, O. (2008). Dynamic capabilities to match multiple product generations and market rhythm. *European Journal of Innovation Management*, 11, 441–471.

Day, G.S. & Wensley, R. (1988) Assessing advantage: a framework for diagnosing competitive superiority. *The Journal of Marketing,* 52, 1-20.

Day, G.S. (1994) Capabilities of a market-driven organization. *The Journal of Marketing,* 58, 37-52.

Day, G. S., & Schoemaker, P. J. (2006). Peripheral vision: detecting the weak signals that will make or break your company. Harvard Business Press.

Day, G.S. (2011) Closing the marketing capabilities gap. *The Journal of Marketing*, 75,183-195.

Deshpandé, R. & Farley, J. (2004) Organizational culture, market orientation, innovativeness, and firm performance: An international research odyssey. *International Journal of Research in Marketing*, 21(1), 3-22.

Deshpandé, R. & Farley, J. (1998) The market orientation construct: Correlations, culture, and comprehensiveness. *Journal of Market-Focused Management*, 2(3), 237-239.

Deshpandé, R., Farley, J. & Webster, F. (1993) Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *The Journal of Marketing,* 57, 23-37.

Drucker, P. (1954) *The practice of management*. New York: Harper.

Fang, E. & Zou, S. (2009). Antecedents and consequences of marketing dynamic capabilities in international joint ventures. *Journal of International Business Studies,* 40, 742–761.

Fiol, C. M., & O'Connor, E. J. (2003). Waking up! Mindfulness in the face of bandwagons. *Academy of Management Review*, 28(1), 54-70.

Garcia, R. & Calantone, R.J. (2002) A critical look at technological innovation typology and innovativeness terminology: a literature review. *Journal of Product Innovation Management*, 19(2), 110-132.

Gatignon, H. & Xuereb, J. (1997) Strategic orientation of the firm and new product performance. *Journal of Marketing Research*, 34, 77-90.

Grawe, S.J., Chen, H. & Daugherty, P. (2009) The relationship between strategic orientation, service innovation, and performance. *International Journal of Physical Distribution Logistics Management,* 39(4), 282-300.

Gray, B. J., & Hooley, G. J. (2002). Market orientation and service firm performance—a research agenda. *European Journal of Marketing*, 36(9/10), 980– 988.

Griffith, D.A. & Harvey, M.G. (2001) A resource perspective of global dynamic capabilities. *Journal of International Business Studies*, 32, 597–606.

Grinstein, A. (2008) The relationships between market orientation and alternative strategic orientations. *European Journal of Marketing*, 42(1/2), 115-134.

Han, J.K., Kim, N. & Srivastava, R.K. (1998) Market orientation and organizational performance: Is innovation a missing link? *The Journal of Marketing*, 62(4), 30-45.

Hanushek, E. & Jackson, J. (1977) *Statistical methods for Social Sciences*, New York: Academic Press.

Hills, G.E., Hultman, C. & Miles, M. (2008) The evolution and development of Entrepreneurial Marketing. *Journal of Small Business Management ,* 46(1), 99-112.

Hughes, P. & Morgan, R.E. (2008) Fitting strategic resources with product-market strategy: Performance implications. *Journal of Business Research,* 61, 323-331.

Hult, G. Hurley, R. & Knight, G. (2004) Innovativeness: Its antecedents and impact on business performance. *Industrial Marketing Management*, 33(5), 429-438.

Hult, G. & Ketchen, D. J. (2001) Does market orientation matter? A test of the relationship between positional advantage and performance. *Strategic Management Journal*, 22(9), 899-906.

Hult, G.T.M., Ketchen, D. J. & Slater, S.F. (2005) Market orientation and performance: An integration of disparate approaches. *Strategic Management Journal*, 26(12), 1173-1181.

Hurley, R. & Hult, G. (1998) Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of Marketing*, 62, 42-54.

Hsu, S., Wang, Y. & Tzeng, S. (2007) The source of innovation: Boundary spanner. *Total Quality Management*, 18(10), 1133-1145.

Jaworski, B. & Kohli, A.J. (1993) Market orientation: Antecedents and consequences. *The Journal of Marketing,* 57, 53-70.

Jones, R. & Rowley, J. (2011) Entrepreneurial marketing in small businesses: A conceptual exploration. *International Small Business Journal*, 29(1), 25–36.

Kahn, K.B. (1996) Interdepartmental integration: A definition with implications for product development performance. *Journal of Product Innovation Management*, 13(2), 137-151.

Kahn, K.B. (2001) Market orientation, interdepartmental integration and product development performance. *Journal of Product Innovation Management,* 18(5), 314-323.

Ketchen, D.J., Hult, G. & Slater, S.F. (2007) Toward a greater understanding of market orientation and the resource-based view. *Strategic Management Journal*, 28(9), 961-964.

Keskin, H. (2006) Market orientation, learning orientation, and innovation capabilities in SMEs. *European Journal of Innovation Management,* 9(4), 396-417.

Kirca, A., Jayachandran, S. & Bearden, W. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *The Journal of Marketing*, 69, 24-41.

Kirca, A.H., Bearden, W. & Hult, G.T.M. (2011) Forms of market orientation and firm performance: A complementary approach. *Academy of Marketing Science Review*, 1, 145-153.

Kohli, A. & Jaworski, B. (1990) Market orientation: The construct, research propositions and managerial implications. *Journal of Marketing*, 54, 1-18.

Kozlenkova, I.V., Samaha, S.A. & Palmatier, R.W. (2013). Resource-based theory in marketing. *Journal of the Academy of Marketing Science*, doi 10.1007/s11747-013-0336-7

Lado, A., Boyd, N., & Wright, P. (1992) A competency-based model of sustainable competitive advantage: towards a conceptual integration, *Journal of Management, 18*(1), 77-91.

Langerak, F. (2003) An appraisal of research on the predictive power of market orientation. *European Management Journal,* 21(4), 447-464.

Langerak, F., Hultink, E. & Robben, H. (2007) The mediating role of new product development in the link between market orientation and organizational performance. *Journal of Strategic Marketing,* 15(4), 281-297.

Marrone JA, Tesluk PE and Carson JB (2007) A multilevel investigation of antecedents and consequences of team member boundary-spanning behaviour. *Academy of Management Journal*, 50(5), 1423-1439.

Martelo Landroguez, S., Barroso-Castro, C. & Cepeda-Carrión, G. (2011). Creating dynamic capabilities to increase customer value. *Management Decision*, 7, 1141–1159.

McDonough III, EF (2000) Investigation of factors contributing to the success of cross-functional teams. *Journal of Product Innovation Management*,17(3), 221-235.

Menguc, B. & Auh, S. (2006) Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness. *Journal of the Academy of Marketing Science,* 34(1), 63-73.

Merrilees, B. Rundle-Thiele, S. & Lye, A. (2011) Marketing capabilities: Antecedents and implications for B2B SME performance. *Industrial Marketing Management, 40*, 368-375.

Morgan, N., Vorhies, D. & Mason, C. (2009) Market orientation, marketing capabilities, and firm performance. *Strategic Management Journal,* 30(8): 909-920.

Morgan, N.A. (2012). Marketing and business performance. *Journal of Academy Marketing Science*, 40, 102–119.

Narver, J. & Slater, S. (1990) The effect of a market orientation on business profitability. *The Journal of Marketing*, 54, 20-35.

Narver, J., Slater, S. &MacLachlan, D. (2004) Responsive and proactive market orientation and new-product success. *Journal of Product Innovation Management,* 21(5), 334-347.

Neter, J., Wasserman, W. & Kutner, M.H. (1985) *Applied linear statistical models: Regression, analysis of variance, and experimental designs.* Homewood, IL: Richard D. Irwin.

O'Cass, A. & Ngo, L.V. (2012) Creating superior customer value for B2B firms through supplier firm capabilities. *Industrial Marketing Management*, 41, 125-135.

Olson, E., Slater, S. & Hult, G. (2005) The Performance implications of fit among business strategy, marketing organization structure, and strategic behaviour. *The Journal of Marketing,* 69, 49-65.

Paladino, A. (2007) Investigating the drivers of innovation and new product success: A comparison of strategic orientations. *The Journal of Product Innovation Management*, 24(6), 534-544.

Pelham, A. (2000) Market orientation and other potential influences on performance in small and medium-sized manufacturing firms. *Journal of Small Business Management*, 38(1), 48-65.

Pelham, A. (1999) Influence of environment, strategy, and market orientation on performance in small manufacturing firms. *Journal of Business Research,* 45(1), 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,* 5, 55-67.

Priem, R.L. & Butler, J.E. (2001) Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review*, 26, 22-40.

Van Raaij, E. M., & Stoelhorst, J. W. (2008). The implementation of a market orientation: A review and integration of the contributions to date. *European Journal of Marketing*, 42(11/12), 1265-1293.

Roach, D.C. (2011) The impact of product management on SME firm performance. *Journal of Research in Marketing and Entrepreneurship*, 13(1), 85-104.

Roach, D. C., Ryman, J. A., & Makani, J. (2016). Effectuation, innovation and performance in SMEs: an empirical study. *European Journal of Innovation Management*, 19(2), 214-238.

Rodriguez, C., Carrillat, F. & 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*, 21(2), 179-200.

Rosenbusch, N., Brinckmann, J. & Bausch, A. (2010) Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing,* 26(4), 441-457.

Sherman, D.J., Berkowitz, D. & Souder, W.E. (2005) New product development performance and the interaction of cross-functional integration and knowledge management. *Journal of Product Innovation Management***,** 22(5), 399-411.

Song, M., Droge, C., Hanvanich, S. and Calantone, R. (2005). Marketing and technology resource complementary: an analysis of their interaction effect in two environmental contexts. *Strategic Management Journal*, 26, 259–276.

Souder, WE and Song XM (1997) Contingent product design and marketing strategies influencing new product success and failure in US and Japanese electronics firms. *Journal of Product Innovation Management*, 14(1), 21-34.

Srivastava, R.K., Fahey, L. & Christensen, H.K. (2001) The resource-based view and marketing: The role of market-based assets in gaining competitive advantage. *Journal of Management***,** 27(6), 777-802.

Teece, K., Pisano, G. & Shuen, D. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 509–533.

Tushman ML and Scanlan TJ (1981) Boundary spanning individuals: their role in information transfer and their antecedents. *Academy of Management Journal* , 24(2), 289-305

Verhees, F. & Meulenberg, M. (2004) Market orientation, innovativeness, product innovation, and performance in small firms. *Journal of Small Business Management* , 42(2), 134-154.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, 24(10), 991-995.

Wolff, J.A. & Pett, T.L. (2006) Small-firm performance: Modeling the role of product and process improvements. *Journal of Small Business Management,* 44(2), 268-284.

Zahra, S.A. and George, G., 2002. Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185-203.

Zollo, M. & Winter, S.G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, 13, 339–351.

Figure 1 – Conceptual Model

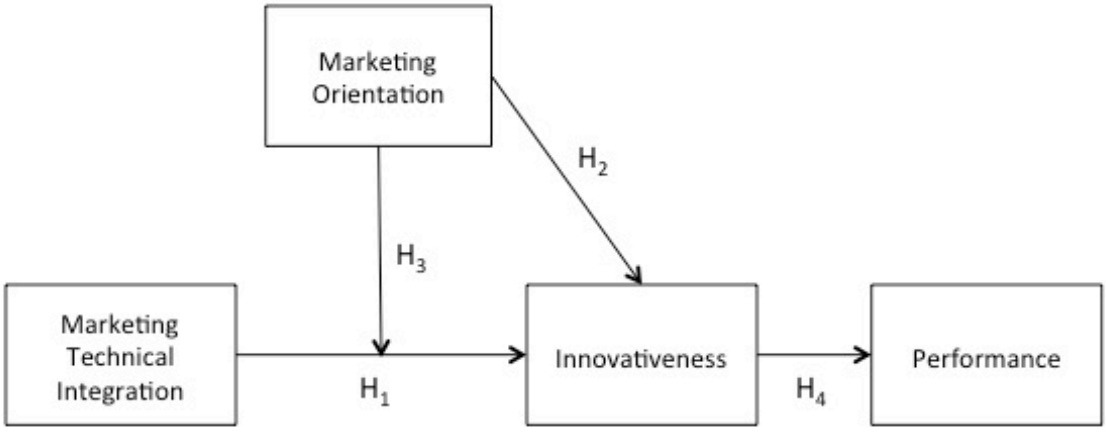

Table 1 - Organization Size and Sector

	Number of Employees									
	5 - 25		25 - 50		50 - 100		100 - 250		Total	
SEGMENT	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Manufacturing	130	24%	73	13%	51	9%	47	8%	301	54%
Technical Service	93	17%	73	13%	44	8%	42	8%	252	46%
Total	223	40%	146	26%	95	17%	89	16%	553	100%

Table 2: Factor Loadings

Survey Questions	Market Orientation Implementation	Market Orientation Internalization
We measure customer satisfaction systematically and frequently	.833	0.184
We have routine or regular measures of customer service	.822	0.03
We poll end users at least once a year to assess the quality of our products and services	.694	0.124
Data on customer satisfaction are disseminated at all levels of the organization on regular basis.	.687	0.239
We constantly monitor our level of commitment and orientation to serving customer needs.	.603	0.444
Our strategy for competitive advantage is based on our understanding of customers needs	.183	0.72
I believe this business exists primarily to serve customers	-.021	0.694
We are more customer-focused than our competitors	.238	0.647
Our business objectives are driven primarily by customer satisfaction	.212	0.644

Survey Questions	Firm Performance	Innovativeness	Marketing Technical Integration
Top management was very satisfied with the overall performance of the business	0.837	0.179	0.232
Our profit growth was _____ when compared to our competitors	0.833	0.231	0.285
The overall performance of the business met expectations	0.820	0.157	0.193
The overall performance of the business exceeded that of our major competitors	0.780	0.260	0.130
Our sales growth was _____ when compared to our competitors	0.760	0.229	0.212
Overall, we have an advantage over our competitors in terms of the superior product or service we offer our customers	0.237	0.856	0.291
The quality of our new products or services is superior to that of our competitors	0.192	0.839	0.317
Our product or service design (in terms of functionality and features) is superior compared with our competitors	0.212	0.793	0.217
Our products and/or services are mainly driven by technical superiority	0.178	0.613	0.366
Marketing and technical personnel participate equally in developing new product and/or service concepts	0.208	0.265	0.840
Marketing and technical personnel communicate effectively and work well together when it comes to our product and/or service issues	0.220	0.310	0.834
We have well established systems for involving business, marketing and technical personnel in our product and/or service efforts	0.216	0.334	0.780

Table 3a

Manufacturing Firms

Descriptive Statistics and Correlations

n = 313

		Mean	S.D.	1	2	3	4	5	6	7	8
1	EMP3	0.23	0.42	1.00							
2	Emp4	0.28	0.45	-0.35 **	1.00						
3	Emp5	0.20	0.40	-0.28 **	-0.32 **	1.00					
4	Emp6	0.19	0.39	-0.27 **	-0.30 **	-0.24 **	1.00				
5	Marketing Technical Integration	-0.01	1.00	0.01	0.10	0.02	-0.06	1.00			
6	MO Implementation	0.03	1.00	-0.01	-0.01	0.05	-0.05	0.35 **	1.00		
7	MO Internalization	-0.13	1.04	0.07	0.06	-0.06	-0.11	0.32 **	0.03	1.00	
8	Innovativeness	-0.07	1.03	0.04	0.07	-0.03	-0.10	0.36 **	0.20 **	0.40 **	1.00
9	Firm Performance	-0.07	1.05	-0.11	0.08	-0.04	0.10	0.33 **	0.19 **	0.18 **	0.25 **

** p < .01; * p < .05

Table 3b

Technical Services Firms

Descriptive Statistics and Correlations

n = 237

		Mean	S.D.	1	2	3	4	5	6	7	8
1	EMP3	0.30	0.46	1.00							
2	Emp4	0.24	0.43	-0.37 **	1.00						
3	Emp5	0.13	0.34	-0.26 **	-0.22 **	1.00					
4	Emp6	0.13	0.33	-0.25 **	-0.21 **	-0.15 *	1.00				
5	Marketing Technical Integration	0.02	1.00	0.00	0.02	-0.01	0.02	1.00			
6	MO Implementation	-0.03	0.99	0.00	0.06	0.00	-0.08	0.56 **	1.00		
7	MO Internalization	0.17	0.92	-0.03	-0.11	0.01	0.02	0.21 **	-0.03	1.00	
8	Innovativeness	0.09	0.96	0.01	-0.06	0.07	0.02	0.35 **	0.19 **	0.36 **	1.00
9	Firm Performance	0.09	0.92	-0.12	-0.03	0.14 *	0.17 *	0.16 *	0.10	0.31 **	0.27 **

** p < .01; * p < .05

Table 4

Regression Results: Innovativeness

	Manufacturing				Technical Services			
	Model 1 - Direct Effects		Model 2 - Interaction		Model 1 - Direct Effects		Model 2 - Interaction	
Independent Variables	Beta	*t*	Beta	*t*	Beta	*t*	Beta	*t*
EMP3	-0.01	-0.17	0.00	-0.01	0.071	0.91	0.069	0.90
EMP4	-0.01	-0.07	0.01	0.14	0.025	0.33	0.003	0.04
EMP5	-0.05	-0.55	-0.03	-0.38	0.097	1.38	0.105	1.51
EMP6	-0.07	-0.83	-0.05	-0.66	0.06	0.80	0.06	0.84
Marketing and Technical Integration (MTI)	0.22	3.76 ***	0.21	3.58 ***	0.25	3.42 ***	0.26	3.39 ***
MO Implementation	0.12	2.17 **	0.13	2.35 **	0.07	0.92	0.07	1.01
MO Internalization	0.32	5.97 ***	0.31	5.76 ***	0.31	5.04 ***	0.32	5.12 ***
Implementation X MTI			0.11	2.25 *			0.10	1.60
Internalization X MTI			-0.04	-0.75			0.12	2.05 *
Adjusted R^2	0.221		0.231		0.195		0.213	
F	13.65 ***		11.41 ***		9.17 ***		8.09 ***	

* p < .05, ** p < .01, *** p < .001

Table 5

	Firm Performance			
	Manufacturing		**Technical Services**	
Independent Variables	Beta	*t*	Beta	*t*
EMP3	-0.01	-0.15	-0.01	-0.08
EMP4	0.13	1.36	0.06	0.78
EMP5	0.05	0.59	0.16	2.18 *
EMP6	0.17	2.01 *	0.20	2.66 ***
Innovativeness	0.26	4.70 ***	0.26	4.14 ***
Adjusted R^2	0.091		0.122	
F	6.15 ***		6.42 ***	

* p < .05, ** p < .01, *** p < .001