THE EFFECTS OF RESPONSIVE AND PROACTIVE MARKET ORIENTATIONS, PRODUCT INNOVATION CAPABILITIES, AND INNOVATIVENESS ON NEW-PRODUCT AND BUSINESS PERFORMANCE*

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ÖZET

İnovasyon, sosyal bilimlerde en önemli çalışma alanlarından biridir. İşletmeler, uygun yeni ürün veya hizmetlerini geliştirdikleri sürece, inovasyon işletmelere katkı sağlar. Buna rağmen pazar için yeni ürün geliştirme mantığıyla ilişkili olarak inovasyonu anlamada pazarlama ve inovasyon arasındaki ilişkiyi kurmak gereklidir. Bu anlamda çalışmada yeni ürün inovasyonu kavramı incelenmektedir. Bu çalışmanın amacı, işletmelerin pazar yönelimlilik, yenilikçilik ve ürün inovasyon yapabilirliklerinin yeni ürün ve işletme performansı üzerindeki etkilerini belirlemektir. Çalışmada İstanbul Sanayi Odası tarafından her yıl açıklanan ve üretimden net satışlarına göre (TL) ürün inovasyonu da gerçekleştiren Türkiye'nin ilk 1000 büyük işletmesi ile araştırma yapılmıştır. 154 katılımcıyla gerçekleştirilen analiz, tepkisel ve proaktif pazar yönelimliliğin radikal ve artımsal ürün inovasyon yapabilirlikleri ile yenilikçilik aracı değişkenleriyle yeni ürün performansını ve yeni ürün performansı aracılığıyla da işletme performansını etkilediğini göstermektedir. Bu doğrultuda pazarlama yöneticileri, bu etkileri dikkate alarak pazar yönelimlilik boyutlarının ürün inovasyon yapabilirlikleri ve yenilikçilik aracılığıyla performanslarını artırmalarını sağlayacak stratejileri uygulamalıdırlar.

Anahtar Kelimeler: Pazar Yönelimlilik, Ürün İnovasyonu, Yapabilirlikler, Yenilikçilik, Yeni Ürün Performansı

*This manuscript was expanded from author's PhD thesis and edited by AJE (American Journal Experts).

İş,Güç Endüstri İlişkileri ve İnsan Kaynakları Dergisi/Is,Guc The Journal of Industrial Relations and Human Resources
Nisan/April 2015, Cilt/Vol: 17, Sayı/Num: 2, Sayfa/Page: 130-155
ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

ABSTRACT

Innovation is one of the most important fields of study in the social sciences. Innovation contributes to businesses if they make new products or services available. However, to understand innovation according to the logic of developing new products for the market, it is essential to establish a relationship between innovation and marketing. Thus, the new-product innovation concept is examined in the study. The purpose of this study is to determine the effects of businesses' market orientation, innovativeness and product innovation capabilities on new-product and business performance. In the study, research was conducted among the 1000 largest businesses identified by the Istanbul Chamber of Industry each year based on net sales of products (Turkish Liras) and carrying out product innovations in Turkey. Analysis of the 154 participants demonstrated that responsive and proactive market orientations affect new-product performance with the mediators of radical and incremental product innovation capabilities and innovativeness and affect business performance with the mediator of new-product performance. In this context and taking into account these effects, marketing managers implement strategies that will improve their performance on the dimensions of market orientation and with the mediators of product innovation capabilities and innovativeness.

Key Words: Market Orientation, Product Innovation, Capabilities, Innovativeness, New Product Performance.

Introduction

Intensive competition exists in all areas of business life. Especially in recent years, businesses are focusing on increasing innovation. Innovation and new-product development concepts have sometimes been used interchangeably in the marketing literature. The main difference between the two is that innovation includes much more managerial and institutional activity than does new-product development. Because marketing is more concerned with product level innovation, it is not surprising that, within the marketing literature, innovation refers mostly to new-product and new business development (Iyer et al., 2006). To examine the relationship between marketing and innovation, the new-product innovation concept is examined in this study. The new-product innovation concept is used following Garcia and Calantone (2002), Atuahene-Gima (2005) and Jerrard et al. (2004). New-product innovation is defined with words such as radical, incremental, really new, architectural, modular, evolutionary, administrative, technical, innovativeness, advantage and newness (Garcia and Calantone, 2002). Akroyd et al. (2009) used the integration of new-product development and innovation concepts. Thus, new-product development innovation reflects the completed process of a new product offered to market. New-product innovation has two dimensions: incremental new-product innovation and radical new-product innovation. Incremental new-product innovation results in product lines with new product varieties and reflects developed products with small improvements in existing products and work processes to achieve cost reductions. For instance, changes in the design of products and features are evaluated as incremental innovation. Although radical new-product innovation includes offering new products in completely new ways (Akroyd et al., 2009), restructuring a market place economy creates new product categories that replace existing products and products that never previously existed (Story et al., 2008). From the explanations above, new-product innovation is defined in terms of dimensions of incremental and radical innovation, focusing on consumers' existing or unmet needs and thus creating new markets using new technologies to develop new products that offer customer equity.

To our knowledge, few similar studies analyzing innovation in new product development have emerged in this field (Garcia and Calantone, 2002; Jerrard et al., 2004; Atuahene-Gima, 2005; Davila et al, 2005; Akroyd et al, 2009; Calantone et al., 2010). In Turkey, the components that businesses must consider important in the new-product innovation process and in this process the effects of market orientation, product innovation capabilities and innovativeness structures on new-product performance and business performance have been subjects of interest. For this reason, businesses' market orientation structures are examined as an innovative culture component; the study aims to determine the strength of the effects of businesses' market orientation, product innovation capabilities and innovativeness structures on new-product performance and business performance.

The present paper specifically focuses on two factors:

(1) Countries such as Switzerland, Germany, the United States, Japan and the Netherlands rank first, but Turkey has a considerably lower position with regard to innovation. According to the Global Competitiveness Index (2011-2012), Turkey ranks sixty-nine; the country ranks last according to the European Innovation Index. Turkey ranks thirty-two in exports, but only 2% of exports consist of high-tech products. Turkey aims to achieve 500 billion dollars in exports and to become one of the

ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

world's largest economies, ranking within the top ten in the year 2023. To achieve this aim, businesses must tend to R&D and innovation. A low share of R&D investments, more bureaucracy, having more small- and medium-sized enterprises and the difficulties in making innovations in these enterprises are the main drawbacks hindering innovation in Turkey (MUSIAD, 2012).

(2) There are insufficient studies about businesses relating to new-product innovation in Turkey. In this light, the main research problem is to determine which structures take part in an innovation-performance relationship. Thus, we will understand how innovation-performance processes designed in businesses can be acted upon and transferred into applications.

The potential contribution of the study is to clarify the relationship system translating the innovation process to performance. However, determining which sub-structures and applications work with this relationship is more important for businesses that operate in economically immature countries such as Turkey and similar countries. Additionally, two basic factors derived from results can be used by firms: resource planning and evaluation of competitive advantage.

This paper is structured as follows. First, the existing literature on new-product innovation is reviewed. Second, the research methodology and results are shown. Next, conclusions are drawn and the limitations of the research are discussed. Finally, some suggestions for future research are made.

1. Literature review and hypotheses

1.1. Market orientation and product innovation capabilities

Market orientation effects on businesses' tendency to innovate are related to the satisfaction of consumers' existing and future needs. Market-oriented businesses' market knowledge-processing capabilities provide for defining consumers’ needs quickly and guide new-product offering timing (Baker and Sinkula, 2005). When market orientation literature is examined, some studies state that market orientation is a component of innovation facilities and performance processes within the context of new-product success and innovativeness (Atuahene-Gima, 1995; Hult and Ketchen, 2001; Jaworski and Kohli, 1993; Kumar et al., 2002; Matsuno et al., 2002; Narver and Slater, 1990; Slater and Narver 1994; Han et al., 1998). These studies emphasize that market orientation with entrepreneurship increases the effect on business performance (Matsuno et al., 2002), directly increases business performance (Hult and Ketchen, 2001), and contributes to the spread of innovativeness within the business (Salavou et al, 2004). Some of these studies emphasize that the innovation process increases the effect of market orientation on performance (Jaworski and Kohli, 1993; Han et al. 1998; Hurley and Hult, 1998). For instance, Atahuene-Gima (1995) found that market orientation was significantly related to new-product performance in the early stages of a product life cycle. Similarly, O’Cass and Ngo (2007) found that market orientation and innovative culture had positive effects on brand performance. These studies state conceptualization of market orientation directly or indirectly affects new-product and business performance according to innovation (e.g., market-related facilities, market knowledge-processing facilities, organizational culture or capability). There are also some studies examining marketing roles, marketing and R&D

interfaces, consumer knowledge and cross-functional cooperation (Callahan and Lasry, 2004; Moenaert and Souder, 1990; Griffin and Hauser, 1993; Workman, 1998), market orientation applications and developments (Beverland and Lindgreen, 2007; Gebhardt et al., 2006; Lichtenthal and Wilson, 1992; Slater and Narver, 1998), and product innovation processes according to market orientation (Kok and Biemans, 2009; Biemans and Harmsen, 1995) in the integration of market orientation and innovation.

Market-oriented businesses not only determine markets' existing needs but also perceive future needs and capabilities. Thus, market orientation consists of being not only responsive but also being proactive (Mohr and Sarin, 2009). Some researchers argue for market orientation with the dimensions of responsiveness and proactiveness (Atuahene-Gima, 1995; Narver et al., 2004; Atuahene-Gima et al., 2005; Tsai et al., 2008; Li et al., 2008; Mohr and Sarin, 2009; Zhang and Duan, 2010; Zhang and Duan, 2010a; Bodlaj, 2010; Bodlaj et al., 2012; Yannopoulos et al., 2012; Oswald et al., 2012; Lichtenthaler, 2012; Serviere-Munoz and Saran, 2012; Lichtenthaler and Muethel, 2012; Alam et al., 2013). Responsive market orientation focuses on customers' needs and reflects market knowledge creation, dissemination and usage belonging to existing customers and products. However, proactive market orientation is related to discovering consumers' unmet and latent needs and satisfying these needs by observing consumers' behaviors. It is achieved by working closely with end-users, conducting market experiments to explore future needs, and product cannibalism of sales of existing products (Atuahene-Gima et al., 2005).

Defined together with responsive and proactive actions, market orientation and innovation orientation structures complete each other and have a fundamental relationship to innovation studies (Zhang and Duan, 2010). Responsive and proactive market orientations have a significant role on new-product performance (Tsai et al., 2008), the interaction of responsive and proactive market orientations, and organizational factors that can affect new-product performance (Atuahene-Gima et al, 2005). At this point, responsive market orientation effects on incremental innovations are greater than proactive market orientation effects (Li et al., 2008). It is believed that proactive market orientation acts together with radical product innovations (Menguc and Auh, 2010).

According to Chandy and Tellis (1998, p. 475), radical innovation defines an approach to new product offerings where businesses combine different technologies from existing products to meet consumers' fundamental needs better than do existing products. In this study, the capability of advancing innovation is addressed, but not radical innovation. Radical product innovation capabilities develop "new to world" product innovations and affect consumers' usage experiences and learnings by changing existing products or eliminating old products. New-product performance as a source of competitive advantage benefits from radical product innovation capabilities. Incremental innovation is defined as new features, benefits in the existing market, and products achieving developments using existing technology. Incremental product innovation capabilities are defined as developing product innovation capabilities by integrating and re-shaping existing technologies. Incremental product-innovation capabilities focus on developing existing technologies and product shapes; it is expected that these capabilities result in new-product performance. Adding a significant feature or developing an existing feature is an example of incremental product innovation (Menguc

ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

and Auh, 2010). The theoretical and empirical literature cited above is the basis for our proposition. Thus, the following hypotheses are proposed:

H1. Proactive market orientation (PMO) has a positive effect on radical product innovation capabilities (RPIC).

H2. Responsive market orientation (RMO) has a positive effect on incremental product innovation capabilities (IPIC).

1.2. Product innovation capabilities and innovativeness

Innovativeness structures (Hurley and Hult, 1998; Hult et al., 2004; Erdil et al., 2005; Verhees and Meulenberg, 2004; Zhang and Duan, 2010; Dibrell et al., 2011; Eris et al., 2012) play an important role in marketing-based studies. Innovativeness is handled with a business approach to the innovation process, realizing the benefits of innovation capacity, and successfully applying new ideas, processes and products (Siguaw et al., 2006); therefore, new-product-offering tendency may increase (Blythe, 1999), and high performance can be achieved (Calantone et al., 2010; Hult et al., 2004; Otero-Neira et al., 2009). Hult et al. (2004) also agree that innovativeness is an important element of business performance. At this point, radical and incremental product innovation applications that businesses should carry out in the process of developing product innovations and responsive and proactive market orientation structures intended to act together with them are very important. As a result, it is thought that radical and incremental product innovation capabilities have a positive effect on innovativeness (Menguc and Auh, 2010). Therefore, we propose the following hypotheses:

H3. Radical product innovation capabilities (RPIC) have a positive effect on innovativeness (INNO).

H4. Incremental product innovation capabilities (IPIC) have a positive effect on innovativeness (INNO).

1.3. Innovation (innovativeness) and performance

Performance defines the number of new-product innovations, the sales percentage of new-product innovations and the frequency of innovations offered relative to competitors by a business (Atuahene-Gima, 2005). New-product performance is to be achieved based on the level of organizational aims in areas such as new-product profitability, sales and market share (Yang and Liu, 2006). Incremental innovations may increase performance but provide short-term competitive advantage, whereas more new and radical product innovations increase business performance and provide long-term success (Siguaw et al., 2006). Business performance may be measured with objective criteria such as profitability, sales growth, and market share, and with subjective criteria based on personal opinion such as consumer satisfaction and employee satisfaction. Performance is

evaluated from the perspective of sales, profitability, and consumer satisfaction by comparison with business sector or competitors (Erdil and Kitapçı, 2007).

There are studies that examine the innovation-performance relationship in terms of the dimensions of new-product performance and business performance. Within the business performance dimension, there are studies claiming that innovation does not affect business performance (Birley and Westhead, 1990; Heunks, 1998) or has negative effects (Mcgee et al., 1995; Vermeulen et al., 2005) and positive effects (Li and Atuahene-Gima, 2001; 2002) on performance. For instance, Oke (2004) studied 63 businesses from different sectors and found an innovation drawback: difficulty in obtaining top management support has negative effects on innovation performance. An interesting result is that businesses having trouble achieving effective innovation processes have more innovation performance than do businesses experiencing no such difficulties. Love and Mansury (2007) examined the innovation performance of 206 American businesses' and found that relationships with consumers, suppliers and strategic partnerships significantly increased innovation performance. Examining the relationship between product innovation and performance, Akgun et al. (2007) studied 106 businesses from different sectors in Turkey and found positive relationships between product innovativeness and business performance. Otero-Neira, Lindman and Ferna´ndez (2009) studied low-tech small- and medium-sized businesses from Italy, Spain and Finland and found that innovation had positively affected business performance. Rosenbusch, Brinckmann and Bausch (2011) also found that innovation orientation and innovation facilities had positive effects on businesses' performance.

Studies made with new-product performance dimensions found different results. For instance, Bonner et al. (2002) found negative relationships between product innovation and new-product performance, whereas Lee and O'Connor (2003) found product innovativeness had positively affected new-product performance. Cooper and Kleinschmidt (2007) researched new-product success factors at 161 businesses from different sectors in Germany, Denmark, the United States, and Canada. They found that high-quality new-product development processes, a clear new-product strategy, adequate financial and human resources, and R&D budget (R&D expenditures for new-product development) affected new-product performance. Top management support, new-product project teams and innovative culture also had an effect on performance. Zhang, Benedetto and Hoening (2009) studied 103 international Chinese businesses and stated that although businesses offer highly innovative products (breakthrough focus), the amounts of allocated resources had a U-shaped relationship with product innovation performance. Although businesses had a platform focus (partially to sustain innovative products), allocating more resources had a positive effect on product innovation performance. However, there was no relationship between the amount of allocated resources to small changes and product innovation performance.

Thus, based on a variety of innovation-performance studies, this study advances the following additional hypotheses:

H5. Innovativeness (INNO) has a positive effect on new-product performance (NPP).

H6. New-product performance (NPP) has a positive effect on business performance (BP).

Nisan/April 2015, Cilt/Vol: 17, Sayı/Num: 2, Sayfa/Page: 130-155
ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

2. Research model

A literature review of innovation shows that various structures have a mediating role. Some studies claimed a partial mediating role of innovativeness on performance (Sadıkoğlu and Zehir, 2010) and a full-mediating role of firm innovativeness (Nybakk, 2012). Similarly, Agarwal et al. (2003: 75) used a model to find that innovativeness is the full-mediator between market orientation and performance relationship. In a meta-analysis study, Grinstein (2008) found that consumer and competitor orientations have an effect on innovation results. Sandvik and Sandvik (2003) found that market orientation directly and positively affects new products for both markets and business.

From these findings and the literature review, we believe that radical and incremental product innovation capabilities have a mediating effect on the paths of market orientation to innovativeness and innovativeness to performance. A model is shown in figure 1.

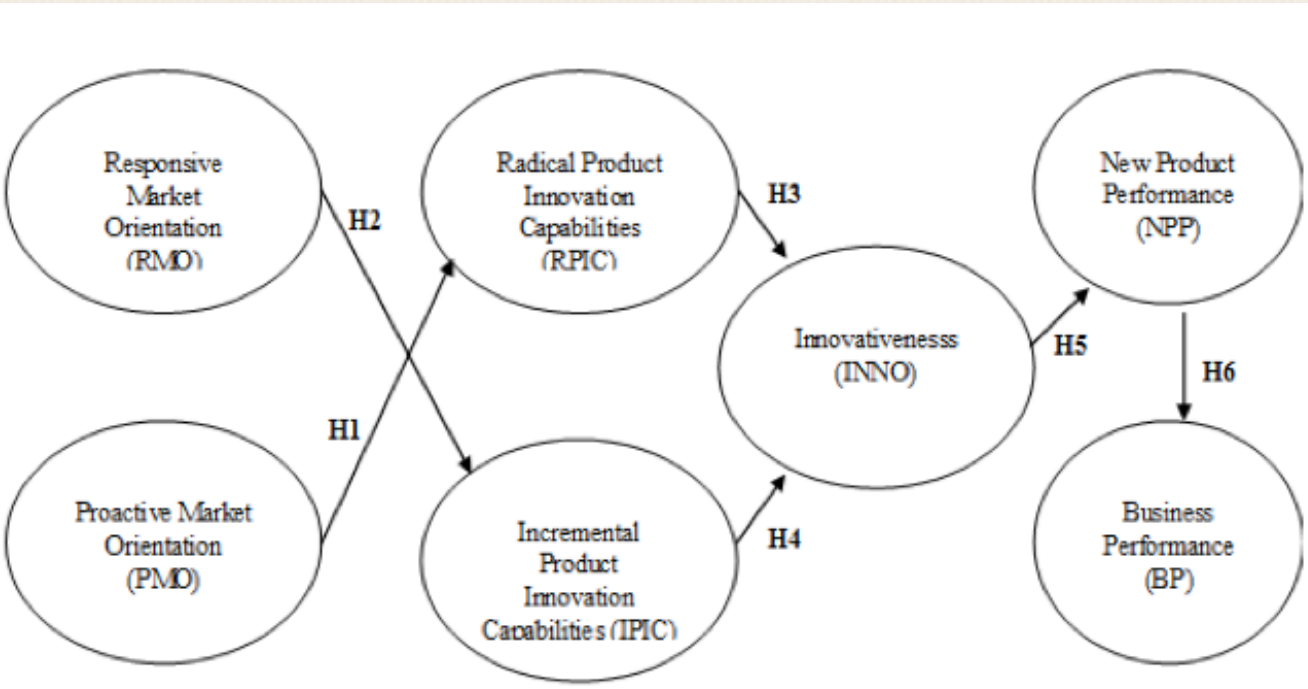

Figure 1: Hypothesized Research Model

Source : *Own research*

3. Methodology

3.1 Purpose

The purpose of this study is to determine the effects of structures of businesses' market orientation, innovativeness and product innovation capabilities on new-product and business performance. We use structural equation modeling (SEM) to fulfill this purpose. In this study, SEM was used because it has been proven to allow for "simultaneous analysis to be performed for assessing the relationships among variables and errors for each variable to be independently estimated, something that traditional regression technique cannot do" (Joo and Sang, 2013, p. 2515).

3.2. Sampling and data collection

A study was conducted among the 1000 largest businesses identified by the Istanbul Chamber of Industry each year based on net sales of products (Turkish Liras). From these businesses, product innovators were identified. A web-based questionnaire was employed to gather the data. A participation request was sent to businesses to fill out the questionnaire. The emails contained a link to a website that allowed participants to complete the survey online. In total, 154 businesses replied to the questionnaire. This sample size appears to be sufficient to achieve a significance level of between 5% and 10% (http://edis.ifas.ufl.edu/pdoob, 2013). The recommended sample size is that 100–150 are needed to obtain reliable results in SEM (Joo and Sang, 2013, p. 2515).

3.3. Questionnaire and measurement

First, a literature review was conducted to determine the effects of the constructs on new-product and business performance. The research instrument consisted of a six-part questionnaire adapted from a variety of sources to gather information regarding demographics, business characteristics, responsive and proactive market orientations, product innovation capabilities, innovativeness and performance. Twenty-seven items were found. Responsive vs. proactive market orientations included nine items, radical and incremental product innovation capabilities included eight items, innovativeness included three items, new-product performance included three items and business performance included four items. Five-point Likert scales, anchored with strongly disagree to strongly agree (1 = I strongly disagree, 5 = I strongly agree), were used to measure the aforementioned constructs. Performance item constructs (totaling seven items) only were also evaluated using a five-point Likert scale (1 = Significantly lower; 5 = Significantly higher). These constructs and their items are shown below.

Responsive market orientation was measured as follows (Narver et al.,2004; Zhang and Duan, 2010):

- We constantly monitor our level of commitment and orientation to serving customer needs (V1).
- Our strategy for competitive advantage is based on our understanding of customers' needs (V2).
- We measure customer satisfaction systematically and frequently (V3).
- Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis (V4).

Proactive market orientation was measured as follows (Narver et al.,2004; Zhang and Duan, 2010):

- We continuously try to discover additional needs of our customers of which they are unaware (V5).
- We incorporate solutions to unarticulated customer needs in our new products (V6).
- We innovate even at the risk of making our own products obsolete (V7).

• We search for opportunities in areas where customers have a difficult time expressing their needs (V8).

• We extrapolate key trends to gain insight into what users in a current market will need in the future (V9).

Radical product innovation capabilities were surveyed as follows (Menguc and Auh, 2010):

• We make innovations that make existing products obsolete (V10).

• We make innovations that fundamentally change existing products (V11).

• We make innovations that significantly enhance customers' product experiences (V12).

• We make innovations that require different ways of learning from customers (V13).

• Our innovation process is based on future technologies (V14).

Incremental product innovation capabilities were surveyed as follows (Menguc and Auh, 2010):

• We make innovations that reinforce our product lines (V15).

• We make innovations that reinforce our existing expertise in existing products (V16).

• We make innovations in how we currently operate (V17).

Innovativeness was measured as follows (Hurley and Hult, 1998; Zhang and Duan, 2010):

• In our business, innovation is perceived as too risky and is resisted (V18).

• People are not penalized for new ideas that do not work (V19).

• Innovation is readily accepted in program/project management (V20).

New-product performance was surveyed as follows (Baker and Sinkula, 2005; Zhang and Duan, 2010):

In the last three years;

• First-to-market with new application relative to significant competitors (V21).

• New-product introduction rate relative to average industry level (V22).

• New-product success rate relative to average industry level (V23).

Business performance was surveyed as follows (Nijssen et al., 2006; Akgun et al., 2007):

In the last three years;

• Return of investment relative to significant competitors (V24).

• Market share relative to significant competitors (V25).

• Sales volume relative to significant competitors (V26).

• Profitability relative to significant competitors (V27).

3.4. Analysis

3.4.1. Participation information

Prior to final data collection, a pilot study was conducted with 20 businesses that are larger and make product innovations (especially in automobile, textile and machine industries) to evaluate how well the questionnaire was understood. The questionnaire was adjusted based on feedback. A pilot study was conducted during the month before the final study.

The characteristics of the participants are given in Table 1. Out of the 154 respondents who completed questionnaires, males constituted a great majority (85.71%) of the business managers (132 men, 22 women). The results for respondents' education showed that 57.14% of the respondents had a graduate education (88 persons), and 40.26% were postgraduates (62 persons), which together constituted the majority of the sample. Of the remainder, 1.3% had high school diplomas and primary education. The total number of respondents was 154 business managers of whom 33.11 percent were research and development managers, 22.72 percent general managers, 19.48 percent marketing department managers, 14.3 percent production department managers and 10.39 percent executive board of the business managers. These respondents were the managers who were in management positions or in the new-product development or product innovation process.

Table no. 1: The characteristics of the participants

		Frequency	Percentage
Gender	Male	132	85,71
	Female	22	14,29
Education	Graduate	88	57,14
	Post Graduate	62	40,26
	High School	2	1,3
	Primary	2	1,3
Position	Research and Development Department Manager	51	33,11
	Marketing Department Manager	30	19,48
	General Manager	35	22,72
	Production Department Manager	22	14,3
	Executive Board of the Business Manager	16	10,39
Total		**154**	**100**

The characteristics of the businesses that participated in the study are given in Table 2. Sizes of the participant businesses were classified into three groups: Large (62.34 percent), mid-sized (24.03 percent) and small (13.63 percent). The geographical activities of the businesses were separated into three groups: local and regional (7.8 percent), national (17.53 percent) and international (74.67 percent). Businesses operating for more than 20 years (old), with more experience (62.34 percent), and having operated for between 11-20 years together with middle-experienced businesses (24.03 percent) formed the majority. When sectors are examined, automotive and automotive suppliers

(18.83), textile-apparel (17.53) and medicine (14.94) sectors that were carrying out more product innovations had a greater percentage.

Table no. 2: The characteristics of the businesses

		Frequency	Percentage
Size	Large	96	62.34
	Mid-Sized	37	24.03
	Small	21	13.63
Level of Activity	International	115	74.67
	National	27	17.53
	Regional	6	3.9
	Local	6	3.9
Activity Time	Operating for more than 20 years (Old), and experienced businesses	96	62.34
	Operating for between 11-20 years and middle-experienced businesses	37	24.03
	Operating for less than 10 years (new businesses)	21	13.63
Sector	Automative and Automative Suppliers	29	18.83
	Textile-Apparel	27	17.53
	Medicine	23	14.94
	Machinery-Metal	13	8.44
	Construction	12	7.79
	Food	9	5.84
	Chemistry	8	5.19
	Electronics	8	5.19
	IT/Telecommunication	7	4.55
	Defense Industry	4	2.6
	Medical	5	3.25
	Others (Plastics, Energy, Software, Teknology, Furniture,Coomercial Kitchen)	9	5.85
Total		**154**	**100**

3.4.2. Model testing

3.4.2.1. Exploratory factor analysis

Our research model describes a mediating role of radical and incremental product innovation capabilities structures between the effects of market orientation on performance through innovativeness. In other words, the effect of market orientation structures on performance is associated primarily with the mediator effect of radical and incremental product innovation capabilities and innovativeness. Model testing was carried out in three stages. In the first stage, scales were tested to determine whether they were valid as generally accepted in the literature. Twenty-seven items in the model were factor analyzed (principal components, varimax rotated). For the statistical analysis, SPSS version 18.0 was used. Overall cronbach's alpha was .918. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .85, an acceptable value. Factor analysis can be used with

Bartlett's test of sphericity (X2 = 2215.15; P = .00). Principal component analysis with varimax rotation was used to validate the structure proposed in the theory-based model. All items with factor loadings greater than .40 were accepted. Twenty-seven items resulted in a seven-factor solution and grouped in their scales as expected. Exploratory factor analysis indicated that loadings ranged between .41 and .90. In total, seven factors (accounting for 69% of the total variance) with eigenvalues greater than 1.00 were extracted and labeled as mentioned in the literature. Table 3 displays these factors and their specifications.

Table no. 3: Results of exploratory factor analysis

Items	PMO	BP	RMO	RPIC	NPP	IPIC	INNO
V1			**.741**				
V2			**.629**				
V3			**.746**				
V4			**.619**				
V5	**.721**						
V6	**.791**						
V7	**.541**						
V8	**.548**						
V9	**.608**						
V10				**.822**			
V11				**.851**			
V12				**.482**			
V13				**.491**			
V14				**.411**			
V15						**.825**	
V16						**.786**	
V17						**.670**	
V18							**.587**
V19							**.781**
V20							**.670**
V21					**.822**		
V22					**.830**		
V23					**.756**		
V24		**.713**					
V25		**.877**					
V26		**.904**					
V27		**.750**					
Explained Variance (%)	11.71	11.34	9.84	9.82	9.71	9.64	6.90
Eigeinvalues	8.96	2.59	1.72	1.61	1.45	1.18	1.10
Cronbach's alpha	.81	.87	.76	.82	.86	.80	.66

KMO = .85; P < .05, X^2 = 2215.15; Sd = 351;
Overall Cronbach's alpha = . 918 (27 items)

PMO= Proactive Market Orientation; **RMO**= Responsive Market Orientation; **BP**= Business Performance; **NPP**=New Product Performance; **RPIC**= Radical Product Innovation Capabilities ; **IPIC**= Incremental Product Innovation Capabilities; **INNO**= Innovativeness

Nisan/April 2015, Cilt/Vol: 17, Sayı/Num: 2, Sayfa/Page: 130-155
ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

3.4.2.2. Confirmatory factor analysis

In the second stage, each structure was first analyzed independently and then subjected to structural validity and fit tests, after which a structural model was constructed and tested. For the statistical analysis, LISREL 8.51 was used. The main purpose of this stage was to test the measurement and construct validities of the scales using fit indices (GFI = goodness-of-fit index, CFI = comparative fit index, NFI = normed fit index, AGFI= Adjusted goodness-of-fit index, RMSEA = root mean square error of approximation, SRMR = Standardized root mean square residual and x2 / df = Chi Square / degree of freedom). In the literature, the accepted values of these indices are X2/df ≤ 3; GFI > .90; AGFI > .90; CFI > .90; 0.05 < RMSEA < 0.08; and 0 < SRMR < 1 (Baumgartner and Homburg, 1996; Iacobucci, 2010; Weston and Gore, 2006). As shown in table 4, all model fits are acceptable independently. Only V6 (We incorporate solutions to unarticulated customer needs in our new products) and V10 (We make innovations that make existing products obsolete) items are dropped from the analysis because these items negatively affect construct validity. Then, the seven-factor confirmatory factor analysis was performed. The aim is to determine whether these seven factors together represent a valid structure. The results of the confirmatory factor analysis show a good fit. The RMSEA, CFI and GFI fit indices are within the determined criteria. All values obtained from this study were within the range of acceptable fitness values or very close to them (X2/df = 1.470; GFI = .98; AGFI = .97; CFI = 1.00; RMSR = .060; RMSEA = .055).

Table no. 4: Results of separate confirmatory factor analysis

	N	X^2/df	CFI	GFI	RMSEA	RMR	SRMR	AGFI	NFI	P value
RMO	4	1.86/2	1	1	0	.008	.014	1	1	.395
PMO	4	.11/2	1	1	0	.002	.003	1	1	.948
RPIC	4	4.84/2	1	1	.06	.018	.022	.99	1	.069
IPIC	3	0/0				Perfect Fit				1
INNO	3	0/0				Perfect Fit				1
NPP	3	0/0				Perfect Fit				1
BP	4	.76/2	1	1	0	.0071	.0073	1	1	.682

Note: x^2 = Chi Square, df = degree of freedom, GFI = goodness-of-fit index, CFI = comparative fit index, NFI = normed fit index, RMSEA = root mean square error of approximation, RMR = Root mean residual, SRMR = Standartized root mean square residual, AGFI = Adjusted goodness-of-fit index, p < .05; n = items in the constructs)

Cronbach's alpha and composite reliabilities of the constructs are also evaluated. It is recommended that as a reliability measurement, composite reliability must be over 0.60 (Bagozzi and Yi, 1988). Composite reliability values of the constructs are between 0.68 and 0.87. Table 5 shows standard errors of observed and latent variables in the measurement model, factor loadings, cronbach's alpha, composite reliabilities, means and t values. Measurement model coefficients are within accepted values and the measurement model is reliable and valid.

Table no. 5: Measurement model values

Constructs (Items)	Cronbach's Alpha	Means	t-Value	Standart Error (SE)	Factor Loadings	Composite Reliabilities (CR)
RMO	0.76	4.202		0.63		0.78
(V1)			8.61	0.31	.83	
(V2)			7.28	0.65	.59	
(V3)			8.12	0.54	.68	
(V4)			8.66	0.60	.63	
PMO	0.73	4.075		0.71		0.75
(V5)			9.96	0.57	.66	
(V7)			10.44	0.50	.71	
(V8)			9.42	0.61	.63	
(V9)			8.27	0.59	.64	
RPIC	0.78	3.504		0.77		0.77
(V11)			11.84	0.49	.71	
(V12)			11.25	0.47	.73	
(V13)			10.52	0.57	.66	
(V14)			10.93	0.59	.64	
IPIC	0.80	4.039		0.62		0.79
(V15)			5.37	0.30	.84	
(V16)			5.37	0.30	.84	
(V17)			5.37	0.69	.56	
INNO	0.66	4.121		0.70		0.68
(V18)			4.16	0.83	.42	
(V19)			4.16	0.54	.68	
(V20)			4.16	0.31	.83	
NPP	0.86	3.92				0.84
(V21)			7.81	0.36	.80	
(V22)			7.81	0.21	.89	
(V23)			7.81	0.49	.71	
BP	0.82	3.87				0.87
(V24)			10.06	0.60	.63	
(V25)			12.46	0.21	.89	
(V26)			12.45	0.18	.91	
(V27)			11.82	0.47	.73	

ISSN: 2148-9874, DOI: 10.4026/1303-2860.2015.0280.x

3.4.2.3. Hypothesis testing

After the general fit indexes oriented to the structural model had been examined, individual calculations were evaluated and were found to be statistically significant for all structures. The general fitness of the measurement model and individual parameter calculations in the structural model were evaluated. Table 6 shows the correlation coefficients for the latent variables. Overall, the fit statistics indicate that the model provides an adequate fit to data for the sample ($x2 = 438.37$, $df = 268$, $p < .05$, GFI = .97, CFI = 1.00, NFI = .97, RMSEA = .064).

Table no. 6: Intercorrelations of constructs

	RMO	PMO	RPIC	IPIC	INNO	NPP	BP
RMO	1						
PMO	.488*	1					
RPIC	.449*	.539*	1				
IPIC	.450*	.520*	.468*	1			
INNO	.424*	.463*	.396*	.367*	1		
NPP	.376*	.460*	.392*	.348*	.380*	1	
BP	.345*	.338*	.236*	.242*	.154*	.421*	1

Note: *$p < .05$

The model describes a full-mediating role affecting responsive and proactive market orientation on business performance; this effect is caused indirectly by the mediator items of radical and incremental product innovation capabilities, innovativeness and new-product performance. In other words, innovativeness is the full mediator between product innovation capabilities and new-product performance, and product innovation capabilities are the full mediators between responsive-proactive market orientations and innovativeness. Responsive and proactive market orientations affect new-product performance by these mediators. New-product performance mediated between innovativeness and business performance. All latent mediator variables in the model were full mediators.

Table no. 7: Fit indices for the research model

Model Fit Indices	Values	Recommended Guidelines
x^2 (df)	438,37 (268)	Non-Significant
x^2/df	1,635	< 3
GFI	.97	≥ 0.9
CFI	1.00	≥ 0.9
NFI	.97	≥ 0.9
RMSEA	.064	<0.05(recommend) <0.08(acceptable)

x^2 = 438,37, df = 268, p < .05, GFI = .97, CFI = 1.00, NFI = .97, RMSEA = .064.

Notes: *x^2 = Chi Square, df = degree of freedom, GFI = goodness-of-fit index, CFI = comparative fit index, NFI = normed fit index, RMSEA = root mean square error of approximation. Table 7 shows the result of confirmatory factor analysis. The x^2/df ratio in this research is under 3 (1.635 = 438.37/268). GFI, CFI, and NFI are over 0.90 and RMSEA is 0.064. All model fits are acceptable. Namely, the validity of the measurements in current study meets the criteria set out by previous literature.*

Table 8 shows the standardized path coefficients and hypotheses testing results. All coefficients are significant and positive. Based on these fit indices, we conclude that the model does fit the data reasonably well. When the hypotheses were tested at the .05 confidence level, all values were found to be significant. The data support H1, H2, H3, H4, H5 and H6. The strongest effect between proactive market orientation and radical product innovation capabilities (0.95) is more than the effect between responsive market orientation and incremental product innovation capabilities (0.68). When other interactions among the constructs were examined, the β values in Table 8 demonstrated that the strongest effect between radical product innovation capabilities and innovativeness (0.80) is more than incremental product-innovation capabilities and innovativeness (0.19). The strongest effect between innovativeness and new-product performance (0.73) is also between new-product performance and business performance (0.57).

Table no. 8: Results of SEM and hypotheses testing results

Hypotheses	Path			Standardized Path Coefficient (β)	t-Value	Results
H1	PMO	→	RPIC	0.95	21,93*	**Accepted**
H2	RMO	→	IPIC	0.68	17,62*	**Accepted**
H3	RPIC	→	INNO	0.80	11,51*	**Accepted**
H4	IPIC	→	INNO	0.19	2,72*	**Accepted**
H5	INNO	→	NPP	0.73	3,31*	**Accepted**
H6	NPP	→	BP	0.57	11,48*	**Accepted**

Note: *$p < .05$

4. Conclusions

The purpose of this study is to determine the effects of businesses' market orientation, innovativeness and product innovation capabilities on new-product and business performance that are operating in Turkey and carrying out product innovations. Businesses' market orientation structures are examined as innovative culture factors based on Narver, Slater and MacLachlan (2004)'s responsive and proactive market orientation structure types. Analysis of the 154 participants demonstrated that responsive and proactive market orientations affect new-product performance with the mediators of radical and incremental product innovation capabilities and innovativeness, and affect business performance with the mediator of new-product performance. A full-mediating model was defined and found no direct effects in the study.

Findings of this study provide a managerial perspective in the institutionalization of businesses. The results show that new-product performance, businesses' performance and a competitive position are powered by production and marketing knowledge and experiences. An innovative culture is also necessary to be more competitive. Research results show that radical and incremental product innovation capabilities affect new-product performance with the mediator of innovativeness. This result is supported by Blythe (1999), Hult et al. (2004), Siguaw et al. (2006), and Calantone et al. (2010), who explain that performance is a function of innovativeness; it is not itself an innovation. For this reason, product managers must exert themselves to create an innovation culture. If product managers can provide these capabilities to increase the innovativeness of the business, new-product performance may increase. The effectiveness of marketing strategies (for example, effective distribution and promotion activities) will also contribute to new-product performance. This result differs from Menguc and Auh (2010), who state that radical product innovation capabilities significantly affect new-product performance, and incremental product innovation capabilities effects on new-product performance are not significant. On the other hand, responsive and proactive market orientations can affect new-product performance through effects on radical and incremental innovations. In this respect, the results obtained from this research support Atuahene-Gima, Slater and Olson (2005)'s findings but differ from those of Zhang and Duan (2010)'s study claiming that responsive and proactive market orientation affects new-product performance directly with the mediator of innovativeness. In this research, it was found that market orientation dimensions affect both radical and incremental product innovation capabilities; in particular, proactive market orientation has a greater effect on radical product innovation capabilities. This result supports Li et al. (2008), who found that responsive market orientation has more effects on incremental innovations than proactive market orientation does. Businesses with incremental innovations tend to less risky markets and product extension strategies. In particular, responsive market orientation is more important in the maturity stage of the product lifecycle of the products. Businesses with limited resources can differentiate themselves by adopting a responsive market orientation and evaluating incremental innovations for products passing from their growth to their maturity periods. As a requirement of a modern marketing concept, businesses must be proactive to survive longer. Being proactively market-oriented has more effects on new-product and business performance and also will aid by preventing new entries to the market. Proactively market-oriented businesses should research market trends for future periods and continuously look for opportunities. From the product life cycle

perspective in particular, products are forecasted and defined first, allowing businesses to use new and radical technologies in their products to meet consumer needs better and to develop radical new products for the market. Consumers also tend to favor products that have more performance and benefits. Better meeting consumer needs can lead to better new-product performance and business performance. In Turkey, it is difficult to be proactively market-oriented and to develop radical product innovations for family businesses and businesses that have limited resources. However, businesses must balance between radical and incremental product innovations.

Businesses in Turkey should focus on planning production processes as well as on better production of new products. Redesign of operations and formulation of a growth strategy through a market-oriented product strategy (Cravens et al., 2000) may be seen as a managerial function. Implication of a strong strategy as a market commitment (Jain, 1993) can also be used to increase market share for businesses. On the other hand, all customer requirements in all categories (e.g., share of wallet) (Du et al., 2007) will be useful tools for learning customer profiles. Therefore, category-based market share may be increased. Additionally, evaluation of production capacity is important for the analysis of process costs. The use of opportunism, capabilities and adaptation may be considered from a managerial perspective (Rindfleisch and Heide, 1997). From a marketing perspective, businesses respond to market signals in a timely manner or by proactive support of branding activities. Actually, the experience gained from new-product innovation may result in branding derived from the positive relationship between the market and the learning organization system (Slater and Narver, 1995). At this point, as the product in operational marketing transforms to communication in communication marketing (Gronroos, 2004), businesses must gain the experience of communicating with consumers in the branding process. Brand concept is not only product-oriented but also a perception, considering how it improves according to product characteristics (Jevons, 2005; Thorbjornsen, 2005). Thus, new products must be analyzed from both businesses' and consumers' perspectives.

This research has some limitations. First, we have considered only the opinion of businesses operating in Turkey. In this context, a cross-cultural study might be conducted to analyze the structure of businesses that are in a non-mature stage. Another limitation was analyzing data from different sectors. Additionally, it would be beneficial to compare businesses employing a more homogeneous sampling to provide deeper insight. Thus, for new-product innovation, in future research it would be beneficial to consider the opinions of businesses from individual sectors such as textiles, food, automotive and medicine. To discuss these relationships, the moderating effects of environmental factors such as changes in technology and markets as well as competitive intensity are also advanced as considerations.

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