**Marketing pioneering orientation as a mediator between operation management capability and firm's innovation performance**

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**Abstract**

**Purpose:** The main objective of this study is to examine the impact of operation management capability on firm's innovation performance via the mediation of marketing pioneering orientation.

**Design/methodology/approach:** This study is done through a quantitative method. The sample data was collected by questionnaire and included 189 managers from Israeli companies that operate in international markets. Based on dynamic capability theory, we developed and analyzed the research model using SmartPLS 4 software.

**Findings:** The main findings show that operation management capability affects marketing pioneering orientation and firm innovation performance. Additionally, the findings reveal that marketing pioneering orientation serves as a partial mediator in the relationship between operation management capability and firm's innovation performance.

**Originality:** The uniqueness of this study is expressed through the research model that combines two disciplines from the research literature (logistics and marketing) and examines their effect on firm's innovation performance.

**Research limitations/implications:** This study focuses on operation management capability and marketing pioneering orientation as two organizational characteristics that increase firm's innovation performance. However, other organizational characteristics also can affect firm's innovation performance. Future research could examine the effect of those characteristics on firm's innovation performance.

**Practical implications:** Managers should strengthen their organizational capabilities, such as operation management and marketing pioneering orientation, to enhance the firm's innovation performance, eventually leading them to gain a competitive advantage against their rivals.

***Keywords:*** *Operation Management Capability, Marketing Pioneering Orientation, firm's Innovation Performance, Mediation*, *Logistics*

**Introduction**

One of the primary goals of any organization is to achieve a competitive advantage over its rivals. Innovation is one of the organizational pillars that help them to reach this goal. Many companies are continuously looking for innovative ways to improve their organizational capabilities and adapt their marketing strategy in order to increase firm's innovation performance. Due to the versatility of innovation within the firm, it is essential to identify the relevant characteristics to evaluate it, yet this is a complex task. For instance, Taques et al. (2021) delineated a distinction in innovation measurements based on the four industry types: (1) product or service, (2) processes, (3) marketing, and (4) organizations.

Researchers in the marketing and logistics literature have already discussed several antecedents of firm's innovation performance. For example: organizational learning capacity (Albort-Morant et al., 2016; Curado et al., 2018), manufacturing capability (Yusr et al., 2018), and technology orientation (Siahaan & Lin Tan, 2020).

This study focuses on two organizational characteristics from two different disciplines. The first is from the logistics field and includes the operation management (OM) capability. The second is from the marketing field and includes a marketing pioneering orientation (PO). These two characteristics were chosen because of their central role in an organization, which may promote firm's innovation performance (INP). OM capability is an organizational capability that emphasizes a firm's production processes for creating products and services (Mabert & Venkataramanan, 1998). Marketing PO reflects an organizational strategy according to which the company operates and emphasizes introducing novel products or services that other companies did not introduce (Mueller et al., 2012). These two organizational characteristics, together and separately, positively impact the firm's INP. The firm's INP, for its part, reflects the outcomes of any company that focuses on developing new products and introducing new production processes into its industry (Zona et al., 2013).

Following the above, this study tries to answer two main research questions (1) Can OM capability and marketing PO enhance firm's INP ?, and (2) Can marketing PO mediate the relationship between OM capability and firm's INP ?.

In addition, this study seeks to advance two main contributions to the research literature. First, it combines two different disciplines (logistics and marketing) within a unified framework, something that has not been done before. Second, it identifies OM capability and PO marketing as two significant drivers of a firm's INP. Several researchers have documented these organizational characteristics' positive impact on firm's INP (García-Villaverde et al., 2017; Pagell & Krause, 2002; Ruan et al., 2020; Wong et al., 2011). Hence, managing and improving these characteristics is imperative both managerially and theoretically.

**Literature review**

**Theoretical framework**

The theoretical framework of this study based on dynamic capability (DC) theory.According to Teece et al. (1997, p. 516), the dynamic capability is defined as “The firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments”. This study deals with two important dynamic capabilities of the organization, namely, OM capability and marketing PO. Both play the role of antecedents for firm's INP.

Pezeshkan et al. (2016) have argued that dynamic capabilities affect methodical change by allowing the renewal of operational capabilities and enlarging flexibility in reaction to market changes. Bititci et al. (2011) have reviewed several managerial processes and argued that operations management is an organization's DC that ensures competitive advantage and enhances its performance.

Liao et al. (2009, p. 263) argued that DC is " the firm’s ability to mobilize its resources and capabilities and align them dynamically with the changing opportunities in the environment holds paramount significance as the firm constantly innovates to survive and create its competitive advantage". Ruiz-Ortega et al. (2023) have examined the relationship between PO and DC and found that PO positively influences a company's generation of dynamic capabilities. Similarly, Mitchell and Skrzypacz (2015) argued that DC foster innovation, especially in new markets, and emphasized that pioneering advances a DC with long-term advantages.

The relationship between DC and firm's innovation was examined in the literature. For example: Ilmudeen et al. (2021, p. 510) have argued that "firms with strong dynamic capabilities are powerful in entrepreneur by shaping through innovation and collaborating with other firms and business entities". Similarly, Ellonen et al. (2009) noted that firm's that have relatively strong dynamic capabilities are producing innovations. Based on DC theory, we developed the research model of this study.

**The research model**

The research model presented in this study (Figure1) encompasses organizational capability, including OM, and marketing strategy, such as PO. These two organizational capabilities are key drivers of a firm's INP.



**Figure1.**Research model

**Operation management capability**

Operation management (OM) refers to the design, operation, and continuous improvement of a firm’s production system, or processes for creating products and services (Mabert & Venkataramanan, 1998). In this study, we consider OM as an organizational capability that allows companies to effectively improve their operation processes to achieve their goals. Krasnikov and Jayachandran (2008, p. 2) stated that “operations capability is focused on performing organizational activities efficiently and flexibly with a minimum wastage of resources. Therefore, this capability is related to efficient manufacturing and logistics”.

According to Hult et al. (2007), organizations with an OM capability are very good at communicating information about their activities and disseminating important data across all units that require it. They assess their operations activities systematically and frequently, and often recognize operations management possibilities in advance of their competitors in the market. In addition, these organizations are likely to discover trends that help them understand what OM activities they may need to be prepared for future developments in these markets.

**Marketing pioneering orientation**

Marketing **pioneering orientation** (PO) can be described as a marketing strategy according to which organizations operate. It reflects a company's propensity to introduce novel products to the market at the earliest time. Typically, pioneering behavior is perceived as the embodiment of entrepreneurial behavior - when a particular company creates a new market, or is the first to enter a new market, which others have not yet recognized or formalized (Covin et al., 2000).

Similarly, Mueller et al. (2012) have argued that pioneers is being the first to introduce novel products and have no prior market data on which to rely.

A company that encounters a dynamic and competitive environment must seek new ways to gain an advantage over competitors. One option is to develop new products and innovatively distribute them. Notably, pioneering behavior involves certain risks. Once the pioneering company’s product is on the market, competitors can exploit the technology that they developed. In effect, the competitors save the time and effort invested by the pioneering company when developing this novel product.

**Firm's innovation performance**

Firm's **innovation performance** (INP) is described as a firm's outcome that yields from implementing their OM capability and marketing PO. Most firms competing within a given industry exhibit similar levels of managerial competence within their various organizational departments, such as operations, human resources, marketing, and strategy (Liao et al., 2007). As a result, many firms see innovation as a key to achieving a competitive advantage. Zona et al. (2013) propound that firm innovation encompasses three pillars: developing new products, introducing new processes, and implementing organizational systems that bolster competitive advantage.

Damanpour (2014) presents a marketing-oriented perspective of firm innovation, quantified by the number of new ideas, products, processes, and business practices. Firm's INP is associated with operational innovation, product and sales innovation, and the integration of knowledge and information (Phornlaphatrachakorn, 2017; Xue et al., 2023). This integration enables new processes and technologies that better understand customer demand and penetrate new markets (Phornlaphatrachakorn, 2017). Ko and Choi (2019) elucidate the definition of a firm's INP by highlighting the mechanism of firm innovation, from incorporating workers' new ideas to developing new products and services. Firm's INP is classified according to production (Kemp et al., 2003) or service (De Jong et al., 2003) categories. Taques et al. (2021) noted that innovation in the service category encompasses three additional classifications: assimilation, demarcation, and integration**.**

**Hypotheses** **development**

**Operation management capability and firm's innovation performance**

OM capability mainly refers to delivery, production cost, production delivery, and production flexibility capabilities (Santos Bento & Tontini, 2018). Improving these capabilities positively impacts firm's INP and competitive advantage (Pagell & Krause, 2002; Wong et al., 2011). Several operational capabilities were found to positively affect firm's INP. For example: specialization, formalization, link mechanisms, and informal social relations (Iranmanesh et al., 2021). Specialists can quickly adapt to changes and often develop new methods (Daugherty et al. 2011). According to Germain and Spears (1999), formalization enables information and knowledge transfer. This contributes to creating innovative approaches through communication, laws, instructions, and procedures (Brès et al., 2019). Olson et al. (2001) have argued that link mechanisms and informal social relations refer to collaboration and knowledge transfer between departments to reduce uncertainty and collaboratively solve cross-organizational problems. These capabilities can be utilized in new products, processes, and services INP (Day, 1994) that, in turn, facilitate competitive advantage (Iranmanesh et al., 2021). Thus, we can assume that:

***H1: OM capability positively affects firm's INP.***

**Operation management capability and marketing pioneering orientation**

This relationship between OM capability and marketing PO is discussed in the research literature. OM capability includes all activities required to produce new products and design new processes and services according to customers changing demands (Bellgran & Säfsten, 2010; Stevenson, 2002). OM capability has seven core characteristics: planning, scheduling, organizing, purchasing, controlling, quality, and inventory control (Wolniak, 2020). OM capability transforms raw materials into finished goods (Domingues & Machado, 2016). In that process, initiatives such as decision-making, product design, and delivery issues should be applied (Peinado et al., 2018).

Hult et al. (2007) assert that organizations that can effectively collaborate and share information internally and externally can anticipate market trends quickly and, therefore, succeed in identifying future opportunities and new markets. Effective internal collaboration and information sharing among marketing, design, and production departments can support the launching of new products and services according to customer needs (Knod & Schonberger, 2001; Levi-Bliech et al., 2018). Thus, OM capability facilitates organizational outcomes such as developing innovative new products and time-to-market performance (Tatikonda & Montoya-Weiss, 2001). This, in turn, fosters marketing PO (Covin et al., 2000; Phornlaphatrachakorn, 2017; Xue et al., 2023). Thus, we can assume that:

***H2: OM capability positively affects marketing PO.***

**Marketing pioneering orientation and firm's innovation performance**

The marketing literature has examined the relationship between marketing PO and firm's INP. Renko et al. (2009) explore the effect of PO on product innovation. García-Villaverde et al. (2017) argued that PO is considered as a key determinant factor of new product performance due to its emphasis on the early entry of uniquely innovative products into the market. They found a positive impact of PO on firm's INP. Elche et al. (2021) investigated the tourism, hotels, restaurants, and travel industry. Those industries are searching for innovative products and services in highly competitive domains that are easy to replicate.

Hence, organizations implement marketing PO to improve innovative products and services that are hard to replicate. Therefore, in these firms, the targets are to be the first to offer a new product or service (Elche et al., 2021) by pioneering to develop state-of-the-art technological solutions, writing patents, or concealing the details of fresh innovations (Huang, 2013; Ruan et al., 2020). Thus, we can assume that:

***H3: Marketing PO positively affects firm's INP.***

**Methodology**

**Data collection and sample**

The data was collected by an Israeli commercial company specializing in surveys. This study is based on quantitative research and contains a structured questionnaire that involves two parts. The first part contained screeners, designed to filter in respondents fitting the objectives of this study. The second part contained all study scales. The data analyses were done by SmartPLS 4 software and included a sample of 189 managers from various international companies and industries in Israel with above 500 employees (78, 41.3%). Most of the respondents are male (129, 68.3%) and hold decision-making authority in several areas: finances (86, 45.5%), procurement and logistics (112, 59.3%), business development (96, 50.8%), marketing (67, 35.4%), and computing/IT (72, 38.1%). Respondents could choose more than one option from the decision-making area.

**Scale's measurement**

The 7-point scales (1 = strongly disagree to 7 = strongly agree) of this research were developed and refined from previous research. The MO capability scale was taken from Hult et al. (2007) and included seven items. The marketing PO scale was taken from Covin et al. (2000) and included four items. The firm's INP scale was taken from Levi-Bliech et al. (2018) and included four items.

**Measurement model assessment**

The measurement model involves the assessment of several indices, such as indicator reliability, internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2012).

*Indicator reliability*

This assessment is reflected as the squared standardised loading of each indicator. As shown in Table 1, all the loadings exceeded the acceptable threshold of 0.7 (Wong, 2013).

*Internal consistency reliability*

Internal consistency reliability was assessed with reference to each construct's composite reliability (CR). As can be seen in Table 1, all CRs exceeded the threshold of 0.7, as suggested by Wong (2013). So, we can conclude that the reliability of all constructs in the measurement model was verified.

*Convergent validity*

In order to evaluate convergent validity, we calculated the average variance extracted (AVE) for each construct. As can be seen in Table 1, all constructs’ AVEs exceeded the threshold of 0.5 (Hair et al., 2014). Therefore, we can confirm that convergent validity was approved.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| AVE | CR | S.D | Mean | Loadings | Indicators | Label | Construct |
| 0.66 | 0.92 | 1.21 | 4.79 | 0.760.810.830.810.840.830.80 | OM1OM2OM3OM4OM5OM6OM7 | OM | Operation Management Capability |
| 0.71 | 0.87 | 1.32 | 4.82 | 0.810.880.840.83 | PO1PO2PO3PO4 | PO | Marketing Pioneering Orientation |
| 0.65 | 0.83 | 1.07 | 5.05 | 0.760.820.840.82 | INP1INP2INP3INP4 | INP | Firm'sInnovation Performance |

**Table 1.** Loadings, CR and AVE of the scales

CR=composite reliability, AVE=average variance extracted, S.D =standard deviation

*Discriminant validity*

Fornell and Larcker (1981) test was done in order to assess discriminant validity. This test requires that each square root of AVE should be higher than the correlation with any other construct. As can be seen in Table 2, all the square roots of AVE (shown in the diagonal) were higher than the correlation with any other construct (shown below the diagonal). So, we can conclude that discriminant validity was confirmed.

**Table 2.** Fornell-Larcker test

|  |  |  |  |
| --- | --- | --- | --- |
|   | OM | PO | INP |
| OM | **0.81** |   |   |
| PO | 0.49 | **0.84** |   |
| INP | 0.53 | 0.58 | **0.81** |

**Results of hypotheses tests**

Table 3 presents the results of the hypotheses tests and shows that in *direct effects* all hypotheseswere found to be significant (*p* < .001). So, H1 to H3 were supported. Moreover, comparing the beta coefficients of OM and PO (0.33 and 0.42, respectively) shows that the impact of PO on INP is slightly stronger than the impact of OM on INP. With respect to the *specific indirect effect*, the finding shows that the path OM→ PO → INP was found to be significant.

**Table 3.** Results of hypotheses tests

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hypothesis | Path | Β | STDEV | T | *P*  | Result |
| Direct effects |  |  |  |  |  |  |
| H1 | OM → INP | 0.33 | 0.06 | 5.41 | \*0.00 | Supported |
| H2 | OM→ PO | 0.49 | 0.08 | 6.45 | \*0.00 | Supported |
| H3 | PO → INP | 0.42 | 0.07 | 6.18 | \*0.00 | Supported |
| Specific indirect effect |  |  |  |  |  |  |
|  | OM→ PO → INP | 0.20 | 0.04 | 4.78 | 0.00\* | Supported |

\**p* < .001 ; All tests are two-tailed.

**Discussion and conclusions**

This study examines the impact of two organizational characteristics such as OM capability and marketing PO on firm's INP. The findings show that OM capability and marketing PO positively and directly affect the firm's INP. Comparing the beta coefficients of OM capability and marketing PO (0.33 and 0.42, respectively) shows that the impact of marketing PO on firm's INP is slightly stronger than the impact of OM capability on firm's INP. So, we can conclude that managers who strive to increase their firm's INP should strengthen their marketing PO. Consequently, they may enhance firm's INP. As indicated by Ruiz-Ortega et al. (2023), PO allows the company to gain new knowledge by moving towards a new unknown market and developing its DC through this knowledge.

Furthermore, with respect to OM capability, companies' dependence on the changing environment requires them to look for innovative production processes and strengthen their OM capability to gain a competitive advantage against their rivals. Regarding the mediation role of marketing PO in the relationship between OM capability and firm's INP the findings show that marketing PO has a partial mediation role. Thus, managers who aspire to improve their firm's INP must combine OM capability and marketing PO to achieve a competitive advantage.

**İmplications**

This study offers several insights that contribute to the marketing and logistics literature and have implications for practicing managers. First, from a marketing perspective, the findings suggest that companies should encourage PO as an effective marketing strategy to ensure the development of DC. By doing so, they may leverage their innovation performance, especially in early entry into markets, or in introducing new products or services to markets. Second, from the logistics point of view, organizations need to strengthen their OM capability to promote innovation performance. Therefore, managers should improve and develop new ideas, products, services, processes, technologies, and organizational systems to manage their operation processes effectively.

Finally, from a theoretical perspective, this study seeks to extend the DC theory and examines two organizational characteristics (OM capability and marketing PO) from two disciplines (marketing and logistics) in one framework. The findings show that these two organizational characteristics impact positively on INP. Hence, companies should integrate OM capability and marketing PO within their logistics operation and strategy management. Which ultimately may enhance innovation performance.

**Limitations**

Beyond the contribution of this study to the research literature, it suffers from Four limitations. First, from a theoretical perspective, this study focused on OM capability, and marketing PO as two organizational characteristics that contribute to the firm's INP. However, other organizational characteristics such as entrepreneurial or technological orientation, can also affect a firm's INP. Future research could examine the effect of these characteristics on the firm's INP. Second, this study was conducted in Israel. In order to increase the generality of the findings of this study, it is desirable to examine the research model in other countries. Third, this research examines companies that operate in international markets without focusing on a specific industry. It is possible that focusing on a specific industry such as high-tech or pharmaceuticals, can yield different results from the research model. Fourth, the method of this study was quantitative. It would be desirable to incorporate a qualitative method in future research and conduct interviews with managers in order to strengthen the research findings.

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