THE RELATIONSHIP BETWEEN ORGANIZATIONAL AMBIDEXTERITY, PROCESS INNOVATIVENESS, PRODUCT INNOVATIVENESS AND FIRM PERFORMANCE

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ABSTRACT

This study aims to investigate the relationship between organizational ambidexterity, process innovativeness, product innovativeness and firm performance. For this purpose, data were collected from 219 managers who work in the manufacturing sector in Kocaeli and Istanbul in Turkey. Findings reveal that organizational ambidexterity is positively related to process innovativeness, product innovativeness and firm performance. Moreover, it is found that product innovativeness is positively associated with firm performance whereas process innovativeness is not.

Keywords: Organizational Ambidexterity, Product Innovativeness, Process Innovativeness, Firm Performance.

INTRODUCTION

Today, firms need to be multifaceted and go beyond meeting customer needs. In these conditions where the dynamics of competition in the market are constantly changing, firms must maintain their place in the market by making incremental developments and at the same time, they must also be open to radical changes to outperform competitors and increase their market share (Menguc & Auh, 2008). Therefore, finding a balance between these two different perspectives is of vital importance for firms in terms of survival and long-term success (Fernández-Pérez de la Lastra & Sánchez-Gardey, 2024; Gschwantner & Hiebl, 2016; March, 1991).

Organizational ambidexterity is an "ability to be aligned and efficient in management to meet business needs while simultaneously adapting to environmental changes" (Yunita et al., 2023). It is considered as one of the main capabilities required to be competitive (Menguc & Auh, 2008; Sarmento et al., 2024). However, there are limited studies on its relationship with product and process innovativeness. Moreover, previous studies do not clearly confirm a positive relationship between organizational ambidexterity and firm performance (Hu et al., 2023). For example, Popadić et al. (2015) found that organizational ambidexterity negatively relates to innovation performance whereas Garousi Mokhtarzadedeh et al. (2022) found a positive association between ambidexterity and performance. In addition, Trieu et al. (2023) found no significant association. That is, there is a contradiction in the association between ambidexterity and performance. Moreover, Chakma et al. (2024) pointed out that previous studies investigated the association between organizational ambidexterity and firm performance in developed countries and recommended more research to examine this association in developing country contexts. Therefore, more research is needed on how organizational ambidexterity affects process innovativeness, product innovativeness and firm performance in a developing country context.

Innovativeness is considered a fundamental ability of firms to be successful and increase competitiveness (Anning-Dorson & Nyamekye, 2020; Carayannis & Provance, 2008; Wang & Ahmed, 2004). However, there are ambiguous results in existing studies such as Finoti et al. (2017), who found there is no direct relationship between innovativeness and performance. Similarly, ambiguousness is available in studies considering the effects of process innovativeness and product innovativeness on firm performance. While some studies reveal that both of these two types of innovativeness positively affect firm performance (Ng et al., 2020), there are also studies found that only product innovativeness (Acar & Özşahin, 2018) and

only process innovativeness have an effect (Hilmi et al., 2010). Due to this contradiction, there is a need more empirical research to expand existing knowledge.

This research aims to examine the relationship between organizational ambidexterity, process innovativeness, product innovativeness and firm performance. Therefore, this study demonstrates the importance of organizational ambidexterity for innovativeness and performance, fills the noted gaps and enriches the related literature.

LITERATURE REVIEW

Organizational Ambidexterity

Ambidexterity means being able to use both hands with the same capability (Günsel et al., 2018). Management scholars have begun to use this individual trait as a metaphor to describe organizations that utilize both their internal resources and pursue new opportunities with the same level of ability (Lubatkin et al., 2006). Organizational ambidexterity is defined as “the ability of an organization to both explore and exploit" (O'Reilly & Tushman, 2013). It also refers to the organizational ability that enables firms to be efficient and adaptive (Raisch & Birkinshaw, 2008). Moreover, Borini et al. (2022) defined it as “the organizational ability, flexibility and balanced efforts towards simultaneously exploiting their existing competencies as well as exploring future competencies”. That is, it is a way to combine exploitation and exploration and use two of them as an organizational strategy simultaneously (Luger et al., 2018; Solís-Molina et al., 2018).

Exploration is about "search, variation, risk-taking, experimentation, play, flexibility, discovery, innovation" (March, 1991). It enables the making of new products and creation new markets in response to environmental changes and also provides direction to market trends (Lubatkin et al., 2006). The benefits of exploration may appear in the long term (Chen, 2017; Maijanen & Virta, 2017). Firms may tend to focus on exploration to monitor the market for novel ideas and better understand the needs of the customers (Clauss et al., 2021).

On the other hand, exploitation is about "refinement, choice, production, efficiency, selection, implementation, execution" (March, 1991). It enables to improve current resources and capabilities (Mathias, 2014), increase efficiency (Asif, 2019), make incremental innovation (Knight & Harvey, 2015) and thus provide short-term benefits (Chen, 2017; Maijanen & Virta, 2017). Firms may tend to focus on exploitation to improve the quality of their business, reduce costs, and maintain customer satisfaction (Sirén et al., 2012).

Moreno Luzon and Valls Pasola (2011) stated that if a firm focuses on exploitation it may be more competent, but it will become obsolete after a while under the current changing environmental conditions and this will negatively affect its position in the market. They also indicated that if a firm focuses on exploration it may take opportunity, but also it will take more risks and will not utilize internal practices and capabilities efficiently. Chandrasekaran et al. (2012) also emphasized that focusing on either one of the two could lead firms into the trap of success or failure. When firms focus on solely exploitation, they try to utilize existing resources and make incremental improvements in products and processes. This may provide them with profits, but they may miss exploration opportunities by relying on this profit. Thus, they may fall into the success trap. On the other hand, when firms focus on solely exploration, they try to innovate radically. Therefore, they may miss the opportunity of incremental improvements, falling into the failure trap (Chandrasekaran et al., 2012). To overcome these traps and to achieve high success, firms need to be ambidextrous. However, exploration and exploitation are different and therefore can cause tension within the firm, especially regarding resource allocation (Chiu, 2014). Because it is argued that their interaction is a zero-sum game (Gupta et al., 2006). Thus, firms are required to balance the allocation of resources for these two dimensions (Wei et al., 2014), since finding a balance between them offers significant advantages that ensure the firm's survival. (Lubatkin et al., 2006; March, 1991). To balance, firms need to have a strategic intent, vision, organizational architecture and a senior team that has a common identity that prioritizes both exploitation and exploration, and also a leader who has the ability to resolve tension in the organization (O'Reilly & Tushman, 2011). On the other hand, exploitation and exploration are different but they both provide substantial contributions for organizations (Günsel et al., 2018).

Process and Product Innovativeness

Today, businesses compete in the global market. Those who can adapt to changes survive, and therefore innovativeness is decisive for their existence (Brodny & Tutak, 2024; Ha et al., 2020). Innovativeness incorporates the adoption of novel ideas or behavior (Humdan et al., 2023). Therefore, it enables firms to find solutions to business problems (Ha et al., 2020) and also is a way of responding to changes (Santos-Rodrigues et al., 2011). From an organizational perspective, innovativeness is an organization's ability to be involved in innovation activities (Makanyeza et al., 2023) and it is a trait of organization (Kunz, 2024). Innovative firms have some important characteristics. They are flexible, have employees with creative talents, give great importance to acquiring knowledge and creating value from it, are open to new ideas, support collaborations, value human capital, have close relations with customers and have made innovation a part of their culture (Brodny & Tutak, 2024).

Process innovativeness is the ability of firms to engage in process innovation in production, management or delivery systems to increase efficiency (Makanyeza et al., 2023). Process innovativeness aims to increase the efficiency of existing processes and in this direction, incremental or radical innovations are made in some or all of the steps in the process (Aslan & Şen, 2023). Das and Joshi (2011) also defined process innovativeness as the ability to make better the existing organizational processes or create new ones by utilizing organizational resources.

Product innovativeness is an ability of firms to develop new products (Adomako et al., 2019). The innovation mentioned in this definition may be completely new or improved products (Kumar et al., 2019). Therefore, it is an effective way to deal with challenges in the market and also respond to changes (Zhang et al., 2023). In fact, in markets where competition is intense and change is at a high speed, those who have better performance are those who produce innovative products, namely firms prioritizing product innovativeness (Sisodiya, 2012).

HYPOTHESIS DEVELOPMENT

Organizational Ambidexterity, Process Innovativeness and Product Innovativeness

Organizational ambidexterity enhances knowledge sharing both within the firm and with the external environment (Sarmento et al., 2024), so extends the knowledge stock of the firm (Cheah & Tan, 2024; Hwang et al., 2023). To be innovative, organizations need to acquire knowledge (Mohamad et al., 2020). As the organization's knowledge infrastructure increases, its innovativeness also increases. Moreover, ambidextrous organizations are able to use their existing organizational resources for high efficiency while pursuing innovation opportunities by continuing to search for new knowledge and markets (Jurksiene & Pundziene, 2016). Organizational ambidexterity can ensure that both market opportunities for innovation are recognized and necessary new knowledge is acquired (Hwang et al., 2023), and that a rapid and efficient innovation development process is experienced by making maximum use of existing capabilities in the innovation process, and that quality innovations are eventually produced (Sartori & Garrido, 2023). It contributes to the innovative capabilities of the firm as it guides the firm to adapt and renew itself to changing conditions (Mustafa et al., 2023). That is, organizational ambidexterity may improve both process and product innovativeness. Therefore, it is suggested the following hypotheses:

H1. Organizational ambidexterity is positively related to process innovativeness.

H2. Organizational ambidexterity is positively related to product innovativeness.

Organizational Ambidexterity and Firm Performance

Organizational ambidexterity enables firms to adapt and respond to changes in the market (Taha et al., 2024). This situation enables the firms to maintain or increase their position in the market in the face of all kinds of changes and difficulties. On the other hand, it enables the firm to maintain its efficiency and stability while also taking advantage of innovative opportunities (Simsek, 2009) since it allows firms to focus internally and so maximize the use of existing resources and capabilities while also focusing externally and pursuing new opportunities (Raisch et al., 2009). That is, on the one hand, it enables firms to increase organizational efficiency and create value in their processes, while on the other hand, it

maximizes firms' profits by developing innovative solutions. Ambidextrous firms can develop their existing resources and capabilities and make the most of them, and as well can also pursue new opportunities in the market and offer innovative solutions (Lubatkin et al., 2006). Organizational ambidexterity provides to improve the quality of organizational outputs (Taha et al., 2024) and reduces cost (Patel et al., 2012). Therefore, the third hypothesis is as follows:

H3. Organizational ambidexterity is positively related to firm performance.

Process Innovativeness, Product Innovativeness, and Firm Performance

The ability of firms to innovate enables firms to achieve high performances since it is a way to get commercial value by developing useful products and processes from innovative ideas (Çağlıyan et al., 2022). Specifically, process innovativeness provides significant benefits to the firm in providing cost advantage, improving quality, and increasing delivery speed, and these provide customer satisfaction (Das & Joshi, 2011) On the other hand, the transformation of raw materials into final products involves a process. Innovations in this process can make the product faster, higher quality, and more reliable (Fubara, 2020). Moreover, product innovativeness is an important organizational characteristic that allows firms to develop and launch market new products, thus enabling the firms to differentiate themselves from their competitors (Adomako, 2021). Moreover, these new products may increase the profitability of firms (Mohamad et al., 2020). Therefore, the following hypotheses are proposed.

H4. Process innovativeness is positively related to firm performance.

H5. Product innovativeness is positively related to firm performance.

The research model is shown in Figure 1.

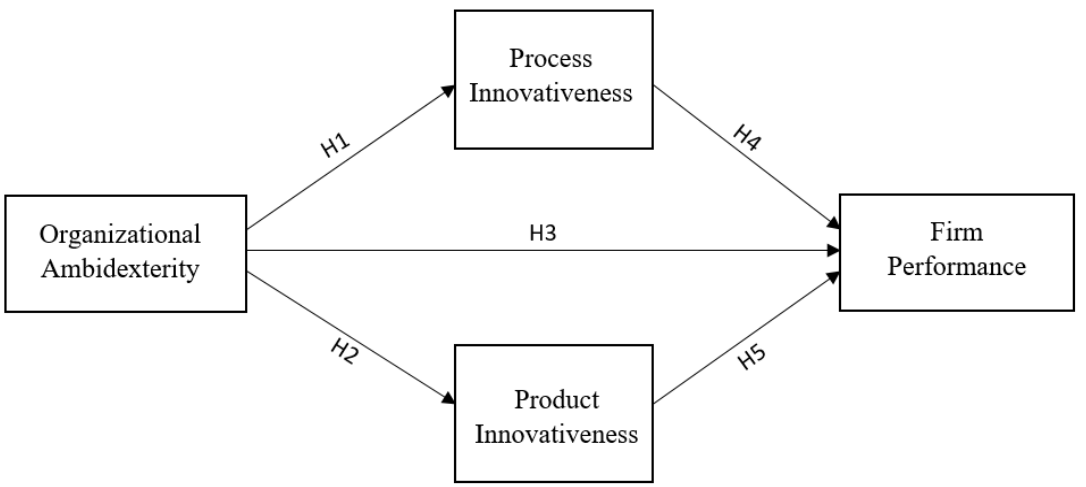

Figure 1. Research Model

RESEARCH METHOD AND FINDINGS

Measures and Sample

In this research, data were obtained by survey method. In this context, the scales developed in previous studies were used to measure the variables. For organizational ambidexterity, the scale developed by Lubatkin et al. (2006) was used. This scale consists of six items for exploitation and six items for exploration. The scales of product and process innovativeness are adopted from Wang and Ahmed (2004), and each of them consists of four items. The firm performance scale also consists of four items and was adopted from the study of Hwang et al. (2023).

The survey was delivered to managers operating in the manufacturing sector in Kocaeli and Istanbul in Turkey and 219 forms were returned. 82.6% of the participants are male, all have bachelor's degrees, 36.5% have postgraduate degrees, and 60.4% are older than 30 years old.

Validity and Reliability Assessment

Firstly, confirmatory factor analysis (CFA) was performed. One item was extracted from the analyses due to low factor loading which is below 0.50. Moreover, goodness-of-fit indices indicate a reasonable fit ($\chi 2/df=1.865$, CFI=0.942, TLI=0.929, RMSEA=0.063). Results are shown in Table 1.

Table 1. CFA Results

Constructs		Items	1	2	3	4	5
Organizational Ambidexterity	1.Exploration	Exploration_6	0.676				
		Exploration_5	0.749				
		Exploration_4	0.717				
		Exploration_3	0.841				
		Exploration_2	0.819				
		Exploration_1	0.879				
	2.Exploitation	Exploitation _6		0.756			
		Exploitation _5		0.888			
		Exploitation _4		0.810			
		Exploitation _3		0.615			
		Exploitation _2		0.755			
		Exploitation _1		0.629			
3.Product Innovativeness		ProductInnovativeness_1			0.847		
		ProductInnovativeness_2			0.802		
		ProductInnovativeness_3			0.771		
4.Process Innovativeness		ProcessInnovativeness_1				0.793	
		ProcessInnovativeness_2				0.766	
		ProcessInnovativeness_3				0.792	
		ProcessInnovativeness_4				0.715	
4.Firm Performance		FirmPerformance_1					0.916
		FirmPerformance _2					0.912
		FirmPerformance _3					0.701
		FirmPerformance _4					0.983

After CFA, correlation coefficients were calculated and it was found that all the variables are related to each other significantly. Then, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha values were checked. AVE values were found above 0.50, CR values were found above 0.70 and square roots of AVE were found above related correlation coefficients as suggested by Fornell and Larcker (1981). Findings confirm the validity of the measurement. Moreover, Cronbach's alpha values were found above 0.70 which confirms the reliability (Nunnally, 1978). These results are shown in Table 2.

Table 2. Validity and Reliability Assessment

Construct	CR	AVE	Cronbach's alpha	1	2	3	4	5
1.Process Innovativeness	0.851	0.589	0.849	0.767				
2.Exploration	0.904	0.614	0.878	0.629*	0.783			
3.Exploitation	0.883	0.560	0.873	0.625*	0.716*	0.748		
4.Product Innovativeness	0.849	0.652	0.847	0.616*	0.562*	0.507*	0.807	
5.Firm Performance	0.934	0.782	0.884	0.462*	0.469*	0.404*	0.534*	0.884

*p<0.01.

The values on the diagonal are the square root of AVEs.

Hypothesis Testing and Results

To test hypotheses, structural equation modeling (SEM) was used. Goodness-of-fit indices indicate a reasonable fit ($\chi 2/df=1.881$, CFI=0.940, TLI=0.928, RMSEA=0.064). Findings are shown in Table 3.

Table 3. Results of Hypothesis Testing

Path		β	t-value
Organizational Ambidexterity	→ Process Innovativeness	0.770	7.414*
Organizational Ambidexterity	→ Product Innovativeness	0.674	7.008*
Organizational Ambidexterity	→ Firm Performance	0.280	2.020*
Process Innovativeness	→ Firm Performance	0.063	0.589
Product Innovativeness	→ Firm Performance	0.307	3.394*

*p<0.05.

According to results, organizational ambidexterity is positively related to both process (β=0.770, p<0.05), and product innovativeness (β=0.674, p<0.05). Therefore, H1 and H2 are supported. It is also found that organizational ambidexterity is associated with firm performance, supporting H3 (β=0.280, p<0.05). Moreover, findings indicate that process innovativeness is not associated with firm performance (β=0.063, p>0.05) whereas product innovativeness and firm performance are positively related (β=0.307, p<0.05). Thus, H5 is supported but H4 is not.

DISCUSSION AND CONCLUSION

This study examines how organizational ambidexterity, process innovativeness, product innovativeness, and firm performance are related. Therefore, this study contributes to the literature in several ways by providing empirical evidence.

First, findings reveal that organizational ambidexterity is positively related to both process and product innovativeness. It is in line with previous research in which a positive effect of organizational ambidexterity on innovation capability (Kurniawan et al.,2020), innovation performance (Alaskar et al., 2024) and innovativeness (Gündüz Çekmecelioğlu et al.,2018) are obtained. However, this study focuses on both product and process innovativeness. Therefore, more specific results are provided and a novel contribution is presented.

Second, it is demonstrated that organizational ambidexterity and firm performance are positively related. This result is in line with many of the previous research (Al-Husban & Yawson, 2024; Çelik & Uzunçarşılı, 2023; Kafetzopoulos, 2021; Mura et al., 2021; Taha et al., 2024). However, some studies in the literature found no relationship (Trieu et al., 2023) between these variables. That is, there is a contradiction regarding the relationship between these variables in the literature. This study contributes to this debate and expands the existing literature.

Third, it is found that product innovativeness and firm performance are positively related whereas process innovativeness and firm performance are not related. There are various studies and different results in the literature regarding this association. For example, Çağlıyan et al. (2022) found a positive association

between organizational innovativeness and performance. Kach et al. (2016) and Ng et al. (2020) found that both product and process innovativeness affect firm performance. On the other hand, Finoti et al. (2017) observed that organizational innovativeness does not affect SMEs' firm performance. Hilmi et al. (2010) found process innovativeness influences SMEs' firm performance but product innovativeness does not. Moreover, Acar and Özşahin (2018) found that product innovativeness affects performance but process innovativeness does not and this study was conducted in Turkey. Acar (2020) also revealed that process innovativeness does not influence performance that is another study conducted in Turkey. The findings of this study are consistent with the results of the mentioned studies conducted in Turkey. Also, it can be deduced that the differences in findings are due to the sample. Factors such as the country in which the study was conducted and the size of the firm may have an impact on this relationship.

Moreover, this research offers practical implications for managers. To increase performance and improve the ability of the organization to provide new products and processes, managers should encourage both exploitation and exploration within the firm. Managers need to manage possible tension to focus them simultaneously. Also, the issue of resource allocation, which is seen as the most important challenge in ambidexterity, should be carefully addressed and while doing so, it should be aware that both effectiveness and adaptability are crucial. On the other hand, product innovativeness is a crucial organizational ability to achieve higher firm performance. Thus, organizations need to have an innovative culture. Managers should promote innovative activities and the development of new product ideas.

This study has also several limitations. First, data were gathered from managers who are working in manufacturing firms in Kocaeli and Istanbul in Turkey. It is possible to reach different results in studies conducted in different sectors, regions, and countries. In other words, generalizing the results is a limitation. Another limitation of this study is about how data is gathered. Data were collected by using a survey which consists of items measuring all the variables. In other words, a cross-sectional research method was used. It is possible to obtain more precise information about cause-effect relationships through longitudinal studies. Future studies can view these limitations as a study opportunity and examine the relevant relationships. This study investigates direct relationships between organizational ambidexterity, process innovativeness, product innovativeness, and firm performance. Researchers may examine the mediator role of process and product innovativeness. Furthermore, future research may add environmental uncertainty and organizational culture as moderators to the proposed research model.

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