



MEDIATING ROLE OF INFORMATION SYSTEMS ON STRATEGY AND PERFORMANCE: INNOVATION AND COMPETITION PERSPECTIVE

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ABSTRACT

Considering SMEs' contributions to investment, employment, tax, and export, they play a vital role in the economy. Increasing competition, changes in customer expectations, and global market expansion can dramatically affect the sustainability and competitiveness of SMEs. Therefore, companies, trying to keep up with the changes in their environments and maintain their positions, are to constantly monitor their external environment, collect information and prepare alternative competition plans. Within the scope of this study, the effect of competition and information management strategies of SMEs on innovation and firm performance, along with the mediating effect of information systems, were investigated. Our findings indicate that competition and information management strategies positively affect the firm and innovation performance of the companies. It was also concluded that the information systems partially used mediated the relationship between strategy and performance, strengthening the existing relationship and improving firm performance.



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1. INTRODUCTION

Small and Medium-Sized Enterprises (SMEs) have a large and significant role in national economies. Considering the basic building blocks of the country's economies, SMEs do not have a generally accepted definition in the literature. Indeed, definitions show considerable variance from country to country due to integrating different fundamental indicators such as economic structure, dominant sectors, capital amount, technological differences, and import-export ratios (Soydal, 2006).

European Union has revised its SME definition to prevent confusion between member states. It has set several different criteria for the new SME definition, such as the number of employed personnel and the balance sheet size (European Commission, 2016). The World Bank defines companies with 0-9 staff as micro-SMEs, 10-49 staff as small SMEs, 50-249 staff as medium SMEs, and more than 200 employees as large SMEs (Tewari et al., 2013).

SMEs have critical importance for national and regional economies with their flexibility, technology adaptation, contribution to regional income distribution and employment, resistance to economic crises, enhanced

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communication with customers and customer orientation (Gul et al., 2010; Montoro-Sanchez et al., 2008; Akdede & Turan, 2008; Özdemir et al., 2007). More than 99% of World Bank member country companies, 95% of OECD member country companies, and approximately 97% of companies worldwide are SME-scale (OECD, 2019; KSEP, 2015; Ozdemir et al., 2007). SMEs also make up 40-80% of total employment globally, 30-70% of GNP, and 30-60% of investments (Ozdemir et al., 2007).

According to 2020 year-end data, there are 3.2 million SMEs in Turkey, comprising 99.8% of the total companies in Turkey. The SMEs turnover amounted to 64.5% of all companies within the country in 2020. The total export figure of SMEs in 2020 is USD 101.8 billion, which is equivalent to 56.3% of the country's total exports (TOBB, 2020).

SMEs are motivated to be innovative, apply new technologies and technologies, or adapt to sectoral dynamics. SMEs are pioneers in implementing both technological and sectoral innovations, are keen to experiment with the innovations in the market and understand the market beyond local boundaries and thus evaluate all export opportunities (Catal, 2007). As a result of technology transfers that have substantially developed in the age of information and technology, SMEs have become even more critical in developed countries because of their flexible structures. The policies followed by many developed countries towards instituting large companies have been replaced by strategic initiatives and policy designs that will allow the creation of innovative and competitive SMEs (Kizil, 2020). Consequently, SMEs, which were seen as economic barriers in the past, have started to stand out as the building blocks of modern economies (Yaman, 2020).

Despite the acknowledged importance of SMEs, unfortunately, SMEs in Turkey have not yet reached their deserved place in the global economy (Aytar, 2019). Among the main reasons behind this failure are that Turkey's R&D expenditures are less than those of OECD and developed countries; university-industry cooperation has not yet fulfilled the expectations; and digital transformation processes, especially in the manufacturing sector, have not been completed.

Therefore, there are many incentives and support mechanisms in Turkey directed at increasing university-industry cooperation with R&D-oriented practices, especially in the digital transformation processes of SMEs. All these support and incentives are steps taken to quickly eliminate the shortcomings of SMEs and allow them to gain a more significant share of the global market. One of the most critical steps is the support programs initiated to encourage SMEs to use information systems and digitize all their processes. In this context, the Presidency of the Republic of Turkey Digital Transformation Office was established to gather the

digital transformation processes needed by SMEs and the public sector under a single roof. In addition, support and incentive programs have been designed to support the digitalization processes of SMEs. Thus, SMEs might gain a sustainable competitive advantage by accelerating their digital transformation, fulfilling Industry 4.0 requirements, and strengthening their competitive strategies.

This study aims to analyze the effects of Competition and Information Management Strategies on innovation and firm performance of SMEs, which are the driving force of the country's economies. Moreover, the mediating effect of information systems on the relevant model was investigated. Within the scope of the study, SMEs located in the Eastern Marmara Region (TR42), which is the industrial heart of Turkey, and operating in the manufacturing sector, were selected as samples. The primary data collected using the survey method were analyzed with the SMARTPLS 3.0.

2. THEORETICAL BACKGROUND

2.1. Competitive Strategy

Rapidly evolving technology and transition to the knowledge economy, combined with globalization, has turned individual and separate national markets into unity. Due to the global competition replacing regional competition, companies should cope with fiercer competition than ever before. Especially rapidly developing technology brings destructive developments in all areas of life. Concepts such as information communication technologies, software, informatics, artificial intelligence, and deep learning have become more prominent today. The rapid growth of globalization over the last 50 years, changing customer demands, increasing competition, and technological developments have also made it difficult to achieve and maintain a sustainable competitive advantage (Bhatt et al., 2016).

Companies should achieve a sustainable competitive advantage by adapting to the changes in the sector, offering improved products and services to customers, and providing products/services that best suit market dynamics (Turulja and Bajgoric, 2019). For companies to gain a competitive advantage in technological developments, they must determine their dynamics' competitive strategies (Carlos et al, 2014). The strategy to be defined within the company should be developed after a comprehensive analysis of the knowledge, capabilities, and competencies (Kathuria et al., 2007; Song et al., 2018). In this aspect, competitive strategies are essential for achieving primary goals (Baack & Boggs, 2008; Ehie & Muogboh, 2016; Kharub & Sharma, 2016; Kharub & Sharma, 2017). Organizations that adopt modern competitive strategies might gain a competitive advantage (Dayan et al., 2017; Kharub et al., 2018).

Competition is often defined as a race between competitors. However, this definition of competition is relatively narrow and fails to explain the comprehensive nature of the concept. Porter's (2010) definition of competition extends the traditional concept of competition. It encompasses various other elements, including the threat of new companies entering the market, buyers' bargaining power, the threat of substitute products and services, and the bargaining power of suppliers. The intensity of these five factors shaping competition varies according to the dynamics of the sector (Ince & Gurbuz, 2020). Porter proposed competitive strategies known as "Generic Strategies" for companies to combat these five competitive elements (Porter, 1998). These are conceptualized as Cost Leadership Strategy, Differentiation Strategy, and Focus Strategy.

Cost Leadership Strategy refers to minimizing the costs of all processes involuted customer requests and needs to compete effectively against the competitors (Ulgen & Mirze, 2013). *Differentiation Strategy* aims to achieve an income above the market average by adopting a structure that differentiates the products and services significantly when compared to its competitors. In this way, companies aim to make sales based on the highest price that customers can pay. *Focus Strategy* focuses on a specific product, buyer, or market. Thus, companies will compete with wide profit margins in narrow markets rather than low income or differentiation in large markets (Ince & Gurbuz, 2020).

When the previous studies in the literature were examined, it was concluded that many studies are examining the relationship between competitive strategies and firm performance by using Porter's strategy matrix (Kharub & Sharma, 2016; Kharub & Sharma, 2017; Voola & O'cass, 2008; Porter 1980; Dess & Davis 1984; Wright et al., 1995; Allen & Helms, 2006; Taskin et al., 2011; Power & Hahn, 2004). Also, Grawe et al. (2009), Slater et al. (2006), and Grinstein (2008) also determined that the strategies identified within the company increase the innovation, competitive advantage, sustainability, and firm performance of SMEs. Within the scope of this study, we consider strategies of Porter, which are stated as a generic strategy, and we assume that they have a positive effect on both the firm and innovation performance:

H₁: *There is a relationship between Competition Strategies and Firm Performance.*

H₂: *There is a relationship between Competition Strategies and Innovation Performance.*

2.2. Information Management Strategy

Knowledge can be defined in the most basic sense as experiences obtained through learning and research. When the concept of knowledge is examined from the business approach, it refers to all the data, capabilities,

and expertise that allow firms to gain a competitive advantage over competitors (Elberdin et al., 2018). Information management can be defined as the systematic collection, analysis, reporting, and storage of all information and data (Bolisani & Bratianu, 2017).

Creating knowledge-based innovative products and services is the key to competing for companies. To gain a competitive advantage and achieve a sustainable structure, they should highlight all their competencies considering their environment and customer expectations. (Cheng, 2007). For this reason, successful management of knowledge and information has become even more critical as a strategic resource for companies. Mainly thanks to the technological tools made available due to technological developments, crucial information in the industry is unearthed, and information can be managed more effectively (Ozer et al., 2020).

In addition to keeping all the information and data of the company within a single system, information management systems that allow collecting, analyzing, reporting, and estimating customer expectations when necessary must be managed with a specific strategy. In this way, SMEs will be able to establish a unique structure for themselves against their competitors. Therefore, companies will correctly analyze all the information within their systems based on their strategy and achieve sustainable competitive advantage (Heisig, 2009; Hernandez & Jimenez, 2016; Ozer et al., 2020).

Recent studies argued a positive relationship between competitive advantage and firm performance (Davila et al., 2019; Hussinki et al., 2019). In addition, Davila et al. (2019) stated that information management practices are of great importance in terms of firm performance. Accordingly, Kianto and Andrevia (2014) indicated that information management practices are even more critical to increasing information's value. There are also many studies in the literature showing that information management strategies have a positive effect on firm performance (Gold et al., 2001; Darroch, 2005; Mckeen et al., 2006; Ho, 2008; Dauda & Yusoff, 2011; Gholami et al., 2013; Kianto et al., 2014; Sanchez et al., 2015; Ipcioglu & Kahya, 2016). Within the scope of this study, we assume that the information management strategies have a positive effect on both firm and innovation performance:

H₃: *There is a relationship between Information Management Strategy and Firm Performance.*

H₄: *There is a relationship between Information Management Strategy and Innovation Performance.*

2.3. Information System Success

The technology and information age we are in has brought about many technological advances in all sectors. Technological advancements in software and hardware provide opportunities that support companies'

competitive strategies, such as reducing costs (Carlos, 2013). Thus, they might reduce the costs of their operations and services, improve quality and decrease service time, thereby increasing their efficiency in all their processes and acquiring new and loyal customers while maintaining their existing customers' portfolios (Sahin et al., 2010).

As a result of developments in information and communication technologies, competition between companies has increased. The life span of existing products and services has been shortened with information and technology transfer. However, these technological developments have also changed consumer preferences. Today, consumers have begun to demand rapid delivery of a more complex, customized, and abundant variety of products (Altschuller et al., 2010; Hosseini & Sheikhi, 2012; Bhatt et al., 2010; Vecchiato, 2015). On the other hand, companies should make all their processes more efficient and effective and integrate systems that can allow for rapid decisions to maintain their existence and gain a competitive advantage in the face of the wind of change and innovation experienced at an unpredictable speed. These rapid changes that SMEs are exposed to have brought with them information complexity. It has become more difficult to reach information in rapidly changing dynamic environments, process the obtained data, and make it meaningful and store it. Therefore, companies need to use information technologies to overcome this complexity and chaos (Celik & Akgemici, 2010).

Information systems can be defined as the systems that enable data collection for any situation, make it meaningful by processing, storing, distributing, and achieving the targeted goals. Decision-makers can collect, analyze, and report information from multiple sources to overcome information complexity (Cakir et al., 2018).

Companies manage complex processes such as procuring and producing the supply required for the product/service within the appropriate standards, running sales-marketing operations, tracking orders, delivering to the consumer smoothly, and following up after-sales customer experiences. Information systems are essential for fast and error-free management of these processes, rapid renewal in the face of sectoral dynamics, detection of failures in processes, and the most efficient and effective configuration of all processes (Cakir et al., 2018).

Using information systems makes management easier; marketing success increases (Shakuntala, 2016); customer satisfaction is increased by tracking and predicting customer preferences (Rao et al., 2015). Efficiency boosts establishing an information-sharing network with suppliers (Dong et al., 2009; Zhu & Kraemer, 2005). By developing innovative ideas, it is made possible to create new and unique

products/services. In addition, product innovation costs and delivery times can be reduced, the scope of network access can be expanded, and the establishment of innovation networks can be encouraged to store, analyze and improve efficiency in all processes of Information Systems (Bourdeau et al., 2021; Alavi & Leidner, 2001; Liu et al., 2013). Because information systems use standard and routine business processes, they can quickly process large amounts of information and allow employees to easily access relevant information when designing new products (Tu et al., 2006).

For this reason, analyzing the effect of information systems on firm performance is one of the areas of interest by researchers. When the relevant studies in the literature are examined, it is seen that the effects of information systems on firm performance (Ravichandran & Lertwongsatien, 2005; Turel et al., 2017), competitive advantage (Garrison et al., 2015; Zhang et al., 2008), business processes (Barua et al., 1995) and supply chain (Dong et al., 2009) have been studied so far. In addition, the effect of lack of control of information technologies on firm performance (Kuhn et al., 2013) and the effects of the flexibility of information systems on firm performance have also been investigated (Tallon & Pinsonnault, 2011). Several authors also acknowledged that implementing information systems contributes to competitive advantage and strategic planning when used effectively and adequately (Johnson & Lederer, 2013; Leidner et al., 2011). Several scholars have also indicated that information systems are essential in decision-making (Johnson & Lederer, 2013; Philip, 2007).

Although some scholars argued that information system capacities might increase firm performance (Santhanam & Hartono, 2003; Petter et al., 2012), it has also been concluded in remarkable studies that there is no relationship between information systems and performance (Rajnoha & Dobrovic, 2017). The possible explanation for this argument is that information technologies are not sufficient to affect firm performance directly and alone (Wang et al., 2015). Indeed, Wang et al. (2015) found that firm performance did not dramatically improve despite increasing investment in information systems in China. Similarly, Peng et al. (2016) found that although many Chinese companies have invested in information systems, their performance and competitiveness have not increased.

Integration of information systems not only improves firm performance but also contributes to innovation performance. Effective use of information systems allows companies to assess the surrounding conditions, develop innovation strategies accordingly and adapt to changes promptly. (Yoshikuni et al., 2018). Hence, integrating information systems into competition strategies, especially in the planning process, increases strategic awareness, allows for a thorough analysis of external factors, and strengthens competitive strategies (Yoshikuni et al., 2018). Yang et al. (2009) stated that

information systems benefit a firm's innovativeness thanks to their features such as information search, cooperation, communication, learning, and prediction. This study also examines the mediator role of information systems success in the relationship between strategy (information management strategy and competitive strategy) and performance (firm performance and innovation performance). Our hypotheses are as follows.

H₅: *Information Systems mediates the relationship between Information Management Strategy and Firm Performance.*

H₆: *Information Systems mediates the relationship between Information Management Strategy and Innovation Performance.*

H₇: *Information Systems mediates the relationship between Competition Strategy and Firm Performance.*

H₈: *Information Systems mediates the relationship between Competition Strategy and Innovation Performance.*

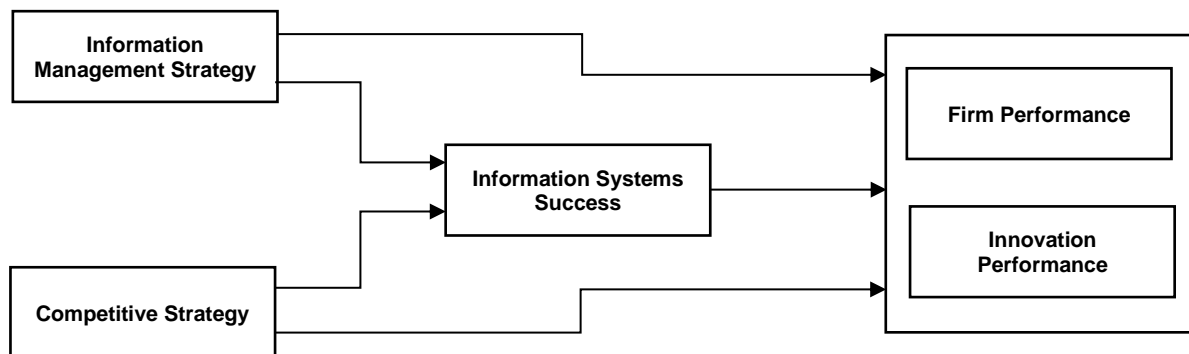


Figure 1. Theoretical Model

3. DATA COLLECTION AND SAMPLING

The current study sample consists of SMEs operating in the manufacturing sector in the Eastern Marmara region, Turkey's industrial heart. Eastern Marmara Region alone made up 13% of Turkey's total exports in 2020 (TURKSTAT, 2021). In addition to its export potential, 35 Organized Industrial Zones (OIZs), seven technoparks, and 10% of the SMEs are exist in the Eastern Marmara region.

Data for the study were collected by survey method. The information of the companies in our sample was obtained through the LONCA application (www.lonca.gov.tr). It was established under the responsibility of the Ministry of Industry and Technology. LONCA provides comprehensive information about many aspects of Turkey's companies, such as products, services, and company profiles. The study's sample group consists of 5.000 companies randomly selected among 20.626 companies registered in the Eastern Marmara Region. The participation rate in our survey was 13.2%, and a total of 663 replies were obtained. After removing the questionnaires with incomplete and inconsistent responses from the dataset, analyzes were carried out with 581 questionnaires with a rate of 11.6%. Structural Equation Model (SEM) was used while performing the analyzes. The Partial Least Squares (PLS-Graph 3.0) approach was used to analyze the measurements and structural parameters.

Cost Leadership and Differentiation sub-dimensions, two of Porter's Generic Strategies, were used to measure the competitive strategy. The Cost Leadership scale, adapted from Porter (1980), consists of five items. The Differentiation Strategy scale, adapted from Kohli ve Jaworski (1990), consists of five items. The Information Management Strategies scale, adapted from Ling (2003), consists of seven items. The Firm Performance scale, adapted from Rao et al. (2015), consists of eight items. The Innovation Performance scale, adapted from Turulja and Bajgoric (2019), consists of eight items. Finally, the Information Systems Success scale adapted from Rao et al. (2015) consists of eight items. Expert opinion was taken to ensure the reliability and validity of the adapted scales.

4. ANALYSIS AND FINDINGS

Similar to the study carried out by Kleijnen et al. (2007), reflective scales were used for all variables in this study. An empty (null) model has been calculated without any structural relationship to evaluate the psychometric properties of measurement tools. Composite scale reliability (CR) and subtracted mean-variance (AVE) were used to calculate the reliability. A total of four questions, one on information management strategy, one on firm performance, and two on innovation performance were excluded from the research because they did not make a standard loading on any factor. After removing these questions, it is seen that the PLS-based CR value for all measurements is above the threshold value of 0.70 and the AVE values exceed the threshold value of 0.50 (see Table 1).

Table 1. Correlation, CR, AVE, and Reliability Values

#	Variables	1	2	3	4	5
1	IMS	(0,773)				
2	CS	0,431**	(0,844)			
3	ISS	0,477*	0,367*	(0,786)		
4	FP	0,689**	0,439*	0,333**	(0,821)	
5	IP	0,505**	0,424**	0,601*	0,328**	(0,883)
	CR	0,917	0,877	0,909	0,791	0,828
	AVE	0,598	0,714	0,619	0,675	0,781
	a	0,933	0,715	0,941	0,894	0,848

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

Note: IMS: Information Management Systems, CS: Competitive Strategy, ISS: Information Systems Success, FP: Firm Performance, IP: Innovation Performance

In addition, the convergent validity was tested by calculating the standardized loadings of the measurements on the relevant concepts. All measures showed a standardized load exceeding 0.50. Then, the discriminant validity of the measurements was tested. In addition, Table 1 shows the correlation between all variables providing further evidence of divergence validity. The AVE value in each structure is expected to be greater than the correlation between structures (Fornell & Larcker, 1981). In the model, it has been observed that none of the reciprocal correlations of structures exceed the square root of the AVE values of the structures (see Table 1). Thus, it was concluded that our measurements met the validity and reliability criteria.

Using the SmartPLS 3.0 software program, the PLS approach (Ringle et al., 2005) and the resampling method were employed to estimate the primary interaction and indirect effects and test the research model's hypotheses

and predictive power (see Figure 1). The T-statistics were calculated for all coefficients according to their stability in the sub-sample to determine statistically significant relationships. Beta coefficients and their associated t-values show the direction and impact of each assumed relationship.

Table 2 shows the hypothesis testing results, including beta values and significance levels. The findings provide empirical evidence of the direct impact of information management strategy on firm performance and innovation performance, conforming H₁ and H₂ ($\beta = .216$ p < .51; $\beta = .628$ p < .01). The findings also indicate that competitive strategy positively affects firm performance ($\beta = .555$ p < .01), and H₃ is supported. In addition, the results show a positive relationship between competitive strategy and innovation performance ($\beta = .187$ p < .1), which conformance H₄.

Table 2. Hypothesis Test Results

Relationships	Path Coefficient (β)	Hypothesis	Results
IMS > FP	0,216**	H1	Supported
IMS > IP	0,628***	H2	Supported
CS > FP	0,555***	H3	Supported
CS > IP	0,187*	H4	Supported

* p < .1, ** p < .05, *** p < .01

Note: IMS: Information Management Systems, CS: Competitive Strategy, ISS: Information Systems Success, FP: Firm Performance, IP: Innovation Performance

4.1. Mediation Effect of Information Systems

Previous studies have shown that the Bootstrap approach is more advantageous than alternative methods such as the Sobel test regarding Type I and II error rates in evaluating the mediation effect and testing the indirect effect (McKinnon et al., 2004). In this approach, the significance of the indirect effect might be analyzed both in the presence and absence of the intermediate variable. Baron and Kenny (1986) defined the test procedure for the mediating effect in their study. This procedure assumes that (a) the independent variable should have an effect on the dependent variable, (b) the independent variable should also have an effect on the moderator or variables, and (c) the moderator or variables should have

an effect on the model when the independent variable is controlled. However, to indicate a full mediating effect, the effect of the independent variable on the dependent variable must lose its significance within the effect of the moderator. In the case of partial mediation effect, the effect of the independent variable on the dependent variable should decrease significantly under the influence of the moderator or variables.

Table 3 shows the results for the hierarchical approach of the mediation effect test, including path coefficients, beta values, and significance levels. The findings show that information management strategies positively affect firm performance without information systems ($\beta = .31$ p < .05). Information management strategies also have a positive effect on information systems ($\beta = .82$ p < .01).

Table 3. Path Analysis

Relationships			Model A	Model B	Model C
IMS	→	FP	0,306**.	--	0,112
IMS	→	ISS	--	0,824***	0,824***
ISS	→	FP	--	--	.0,493**
IMS	→	IP	0,527***	--	0,029
IMS	→	ISS	--	0,315***	0,315***
ISS	→	IP	--	--	.0,217
CS	→	FP	0,138**.	--	0,251
CS	→	ISS	--	0,477***	0,477***
ISS	→	FP	--	--	.0,398**
CS	→	IP	0,269**.	--	0,196
CS	→	ISS	--	0,634***	0,634***
ISS	→	IP	--	--	.0,745**

* p < .1, ** p < .05, ***p < .01

Note: IMS: Information Management Systems, CS: Competitive Strategy, ISS: Information Systems Success, FP: Firm Performance, IP: Innovation Performance

In addition, the results show that information systems are positively associated with firm performance ($\beta = .49$ $p < .01$). Finally, the direct impact of information management strategies on firm performance is eliminated by the presence of information systems. Therefore, the Baron-Kenny procedure reveals that information systems completely correlate information management strategies and firm performance.

According to the analysis, the information management strategies positively affect the innovation performance in the absence of information systems ($\beta = .52$ $p < .01$). It is also seen that information management strategies positively affect information systems ($\beta = .31$ $p < .01$). However, it has been determined that information systems do not affect innovation performance.

Competitive strategies affect firm performance positively in the absence of information systems ($\beta = .14$ $p < .01$). Results also provide the evidence that competition strategies have a positive effect on information systems ($\beta = .48$ $p < .05$) and that information systems have a positive relationship with firm performance ($\beta = .40$ $p < .01$). Besides, competition strategies positively affect the innovation performance in the absence of information systems ($\beta = .27$ $p < .01$); competitive strategy have a positive effect on information systems ($\beta = .63$ $p < .05$); and information systems have a positive impact on innovation performance ($\beta = .74$ $p < .01$). Consequently, H₅, H₇, and H₈ are supported, while H₆ is rejected.

5. CONCLUSION AND RECOMMENDATIONS

Dramatic and dynamic developments have occurred in the information technologies, telecommunication, electronics, and machinery sectors. Regarding these developments and the interactions between the sectors, significant developments took place one after another. These changes and developments have accelerated globalization, intensified competition, and turned different markets into unified ones.

Due to the rapid increase in internet and communication technologies and B2B/B2C internet platforms, competition has gone beyond local boundaries and reached a global dimension. Therefore, consumers can access affordable, high-quality, and personalized products. This situation has pushed all companies to use their scarce resources most efficiently. Companies cannot maintain their sustainability by making products that only meet the demands and desires of consumers as the purchasing power of consumers and their access to alternative products/services should be taken into consideration. Nowadays, companies need to maintain both competitive advantage and sustainability should increase their innovation performance. Today, companies should improve innovation performance to compete and survive (Wang, 2019).

Therefore, SMEs should be versatile, manage demands, and make all processes efficient while adapting to environmental changes (Andriopoulos & Lewis, 2010; Bodwell & Chermack, 2010; Cantarello et al., 2012). They should constantly collect information about their external environments and prepare alternative plans for possible situations and conditions (Komurcu, 2020). For this reason, the competitive strategies and the information management strategies that enable the correct management of information flows within the company must be compatible.

This study examined the effect of SMEs' competitive and information management strategies on innovation and firm performance. The findings indicate that competitive and information management strategies positively affect performance. We also found the mediating effect on the relationships between information management strategy-firm performance, competitive strategy-firm performance, and competitive strategy-innovation performance. The mediating effect was also observed to contribute to firm performance. Interestingly, information systems do not affect information management strategy and innovation performance.

The findings obtained within the scope of the study are essential for companies. SMEs that want to get a share from the local and global market and gain and maintain competitive advantage and sustainability over their competitors should determine their competitive strategies by considering their internal dynamics, market dynamics, and environmental conditions. Since the dynamics of each company are different, competition strategies should be selected considering the intensity of competition, and the relevant strategy should be reviewed and changed, or mixed strategies should be adopted. Today, knowledge has become more critical than ever due to the transition from service-intensive to information-intensive sectors. For this reason, companies

should emphasize the hidden intellectual knowledge within the company to achieve significant increases in innovation performance.

Within the scope of the study, the importance of information systems has also been revealed. Companies should not see information systems as simple programs used in warehouse, accounting, or logistics departments. The information systems chosen according to the companies' dynamics also allow high efficiency in procurement, production, storage, and logistics departments and help unearth hidden intellectual knowledge.

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