Examining the Mediating Role of Product Innovation in the Association between Marketing Intelligence and Competitive Advantage: An Applied Study on Telecommunications Companies in Egypt

#### Mona H. Mussa a, '

- <sup>a</sup> Faculty of Management, Economics and Business Technology, The Egyptian Russian University, Cairo, Egypt
- \* Corresponding author: mona-hamed@eru.edu.eg

#### **Abstract**

This study examines the association between marketing intelligence and competitive advantage in telecommunications companies in Egypt. Specifically, it investigates the role of product innovation from the managers' perspective as a mediator. The quantitative method was applied. Primary data was collected through an online questionnaire from managers dealing with marketing intelligence in telecommunications companies in Egypt. A convenience sampling technique was used. The sample size was 400 with valid responses of 384. Data was analyzed via (SPSS v22). The findings confirm the significant association between marketing intelligence and competitive advantage, and product innovation mediates that association. Additionally, the model has a high ability to predict competitive advantage through marketing intelligence and product innovation. The study recommends that telecommunications companies should depend more on marketing intelligence to speed up product innovation and achieve competitive advantage compared with competitors.

# Keywords

Marketing Intelligence; Product Innovation; Competitive Advantage; Telecommunications Companies

#### **Article history**

Received: 11 March 2023 · Accepted: 7 August 2023

#### 1. Introduction

Globalization and the dynamic business environment have heightened competition in the market and increased pressure on business organizations. To survive in this environment of intense competition, business organizations need to thoroughly understand ongoing changes in market trends (Falahat, 2020). Therefore, identifying possibilities and threats requires a focus on scanning the environment (Noviyanti, 2020). Companies should update their information to be able to compete and gain a competitive advantage, which is a result of understanding the market (Davenport, 2020). Market analysis is a specific kind of research that is important for decision-making. Entering new markets demands companies to maximize their capabilities of market intelligence, which helps them introduce innovative products and differentiate themselves from competitors (Aripin et al., 2022).

Therefore, marketing intelligence (MI) becomes a critical tool for companies to respond to such fierce competition and achieve a competitive advantage, by helping these companies to be different and enter new markets with innovative products. Indeed, companies can rely on MI as a strategic tool to take advantage of opportunities (Braasch, 2020). Besides, counteracting threats from the external environment (Jain, 2017). MI is the strategy that helps companies get information related to a specific market by collecting and analyzing data considering current market conditions (Nghia, 2018), which facilitates decision-making processes (Kanwal, 2017a). MI is a significant tool that can be utilized by telecommunications companies to achieve creativity and to be more competitive, by helping them in monitoring their competitive environment. MI becomes a critical element for telecommunications companies' survival and growth. Further, it helps in the development of new products and the improvement of existing ones, providing these companies with a competitive advantage, and allowing them to stay ahead of competitors (Al-zoubi, 2016).

The telecommunications sector in Egypt is considered one of the most important sectors, which works in a highly competitive environment. Competitiveness demands that the sector have a deep understanding of the continuous changes in market trends to survive and respond to such fierce competition. Understanding the external environment will help telecommunications companies to grow and develop new products or services, new technologies, or improve existing ones (Schubert, 2020), which is crucial for attaining a higher market share and achieving a competitive advantage (Aripin et al., 2022). As MI can be a strategic tool that the telecommunications sector in Egypt can depend on to seize opportunities and counteract threats, as well as speed up product innovation and achieve competitive advantage. Accordingly, the telecommunications sector in Egypt has been chosen to be the applied field study in the current study.

MI's effects on competitive advantage have been investigated more in previous literature, but the argument on whether product innovation can mediate the association between MI and competitive advantage in telecommunications companies hasn't been explored yet. This situation reflects an empirical gap in literature.

Therefore, this research attempts to bridge this gap and contribute to the existing literature related to MI, product innovation, and competitive advantage, by examining the association among MI, product innovation and competitive advantage, as well as the mediating role of product innovation in the association between MI and competitive advantage in telecommunications companies in Egypt.

Investigating the relationship between MI and product innovation, in addition, the relationship between product innovation and competitive advantage, as well as the relationship between MI and competitive advantage, and the mediating role of product innovation in the relationship between MI and competitive advantage in telecommunications companies in Egypt, which distinguishes the study from others in terms of its objectives and its field of study. The following section will demonstrate the associations between the study variables in more detail.

#### 2. Literature review

# 2.1. Marketing Intelligence and Product Innovation

The main problem for most organizations operating in a changing business environment is obtaining marketing information; this is a topic that researchers frequently subject to discussion (Pinarbasi, 2019; Hendar, 2020). MI is related to the information that companies collect from customers, suppliers, competitors, social media, blogs, and the Internet (Jeffery, et al., 2016). Therefore, MI can be seen as an effort that is ethical, timely, targeted, and systematic, which aims to gather, synthesize, and analyze competition, market, and environment to provide decision-makers with actionable insights. Such insights can help companies in their tactical, operational, and strategic decision making (Premkumar & Ramkumar, 2019).

Furthermore, MI is the act of locating and gathering information linked to changes in the dynamic business environment, such as the changes related to competitors and product trends (Hegdepatil, 2021). This can be helpful for companies to understand the market they work in or intend to work in. Moreover, companies will be able to recognize the opportunities that can be obtained, as well as customers' needs and preferences, and prepare themselves to seize such opportunities. Therefore, customer information, product information, and competitors' information can be the main variables of MI (Aripin et al., 2022).

In addition, MI is a critical factor for better understanding the external environment and the demands of markets and customers, and then companies can serve these demands successfully through product innovation. MI can play a significant role in transforming customer needs into product characteristics (Mostaghel et al., 2019), Furthermore, it can assist in offering customers customized products that embed desired product attributes that make them feel satisfied (Mandal, 2018).

Marketing intelligence is an important instrument for businesses to obtain market knowledge, which is regarded as the foundation for product innovation (Utami et al., 2022), and such information can allow organizations to develop innovative goods before their competitors (Serdari, 2020). Product innovation occurs when companies working in a dynamic environment satisfy market demands by producing novel products or services (Murmura et al., 2021). Additionally, it helps companies to meet the continuously changing market demands by enhancing the quality of the product as well as adding new attributes to their products (Chatterjee et al., 2021). As a result of the above discussion, it can be hypothesized:

H1: there is a relationship between marketing intelligence and product innovation.

## 2.2. Product Innovation and Competitive Advantage

When companies understand the external environment, it shows in their ability to develop and innovate (Lee, 2017). Innovation is the process Innovation is the process of generating new products or services, new technologies, or improving existing ones by utilizing organizations and existing technological processes (Schubert, 2020). According to Zhang (2018), Innovation is categorized as product innovation (creating new or improving existing); process innovation (introducing new ways to integrate inputs in the manufacturing process); and organizational innovation (introducing new or improving existing resources). Product innovation will be the subject of the current study.

Product innovation can be described as the introduction of new products/services to satisfy customer or market needs (Jugend, 2018), which protects companies from competitors and threats (Falahat, 2020). Indeed, product innovation has a significant and positive impact on organizational performance. It is a perfect way for the organization to differentiate itself from competitors, especially with the increase of products that are almost similar in the market (Charterina, 2018). Therefore, companies should continuously create new products or improve existing ones to compete and gain a competitive advantage over their competitors (Aripin et al., 2022). If the companies do not do so, they will face fierce competition and are more likely to fail (Marshall, 2019). It is found that companies with an obvious innovation strategy have experienced better internal business process performance, customer performance, and financial performance, and gained a competitive advantage (Song, 2020).

Product innovation is the key element for business growth and the enhancement of product features, which can lead to gaining a competitive advantage. Product innovation means developing new products with different specifications or improving the existing ones to satisfy customer needs by using new techniques in the production process. It is the strategic component that enables the business to attain a higher market share in the dynamic business environment. Product innovation is the key to providing customers with competitive products that can meet their preferences and

maintain their loyalty. Product innovation is a strategy that combines production efforts with commercial and technological design to produce a distinctive product that contains new ingredients, which provides customers with a value that is new and cannot be imitated by competitors (AL-Hashem, 2020)

In conclusion, when companies offer products that meet their consumers' demands, the product can play an important part in connecting them with their customers. Product innovation can help companies offer them products with added value in terms of new design, taste, use, function, technologies, and production methods (Gómez et al., 2022). Therefore, product innovation is essential for acquiring a competitive advantage (Cheraghalizadeh et al., 2021), as well as improving the financial performance of companies (Wijekoon et al., 2021). Accordingly, it can be hypothesized:

H2: there is a relationship between product innovation and competitive advantage.

# 2.3. Marketing Intelligence and Competitive Advantage

MI is a critical factor for organizational success in today's dynamic business environment. It can help companies respond to continuous and rapidly competitive changes (Kanwal, 2017a), which reflect in their ability to respond to increased competition, and to outperform their competitors (Hendar, 2020). When companies face changes in the external environment, they should collect and analyze data about these changes, to gain needed information, which is considered the basis for decision-making (Konishi, 2020). MI can be defined as a system that integrates human interaction with the analysis and dissemination of precise, timely, and pertinent information for use in marketing strategy by decision-makers. (Kanwal, 2017b; Al-Hashem, 2020). Therefore, MI can be regarded as an essential tool that provides managers with updated information, which is needed to make more efficient strategic decisions, especially, in the dynamic environment that is characterized by fierce competition (Daabes, 2017). In other words, MI becomes a vital tool for each company that seeks survival; it helps them in their constant readiness to face unpredictable and fast environmental changes.

Companies that want to be market leaders and gain competitive advantage must constantly scan and monitor market needs. Marketing intelligence systems can help companies in achieving what they seek by processing massive amounts of marketing data and conducting in-depth analyses of client needs. Moreover, the storage capacity and information retrieval of such systems can provide a wide variety of customer-related information that can be very helpful in building a strong relationship with them (AL-Hashem, 2020).

Furthermore, MI allows companies to recognize unmet the customers' needs, as well as the actions needed to be more competitive in dynamic markets. In addition, it allows companies to predict the changes that will happen in such markets. Accordingly, market intelligence is a key tool that companies can use to generate

value for their customers and improve their competitive advantage (Gómez et al., 2022). As a result of the above discussion, it can be hypothesized:

H3: there is a relationship between marketing intelligence and competitive advantage.

# 2.4. The Mediating Role of Product Innovation in the Relationship between Marketing Intelligence and Competitive Advantage

Competitive advantage is a big challenge for companies to be achieved, especially when the processes that lead to competitive advantage are not clear (Cao et al., 2019). Competitive advantage means that the company has an advantage that its competitors do not, and when companies offer their customers better value than their competitors do, then they gain competitiveness. Competitive advantages can be achieved when companies create unique products, which can reflect the ability of a company to surpass competitors that work in the same industry. In addition, it helps companies build their prestige, attract their customers, and satisfy them (Chatzoglou, 2018), as well as seize opportunities and counteract threats in the external environment (Jain, 2017). Market intelligence and product innovation have been associated with having a competitive advantage (Falahat et al., 2020). In addition, the skills of people in the company, as well as their perception regarding adequate performance and business management, can affect competitive advantage (Gómez et al., 2022).

The relationship between MI and product innovation has been investigated in previous literature, for instance, the study conducted by Aripin et al., (2022) that was applied to SMEs investigated the relationship between MI and product innovation, and the findings show that there is a strong and positive association between them. The study illustrated that MI could help companies recognize the trends in markets by providing companies with information about what the customers want, as well as the market, and then companies can employ such information in innovating new products or improving the existing ones. So, MI is an important antecedent for product innovation (Serdari, 2020; Hegdepatil, 2021), which requires a very structured analysis of the target market to get a deep understanding of that market. MI can simplify the complicity of that information related to the external environment (Aripin et al., 2022). In other words, MI has a significant effect on product innovation.

In addition, the relationship between product innovation and competitive advantage has been investigated in previous literature, for instance, the study conducted by Zhang (2018), as well as the study by Snihur (2019), proved the significant and positive relationship between the two variables. Also,, MI plays a significant role in boosting competitive advantage, by helping companies to get more insights related to customer needs and the market, allowing them to address such needs, surpass competitors, and achieve competitive advantage (Aripin et al., 2022).

Regarding the above-mentioned, MI serves as a primary antecedent to both product innovation and competitive advantage. In addition, product innovation can play a significant role in achieving a competitive advantage. Therefore, the current study aims to investigate the mediating role that product innovation can play in the relationship between MI as an independent variable and competitive advantage as a dependent variable. As a result of the above discussion, it can be hypothesized:

H4: product innovation mediates the relationship between marketing intelligence and competitive advantage.

# 3. Method

Descriptive research was employed as a research format to accomplish the mentioned research objectives, and the quantitative research method was chosen. Data was collected using both secondary sources such as journals, books, and websites, as well as primary sources through an online questionnaire. The questionnaire was created based on several literature reviews.

The questionnaire consists of 7 items representing marketing intelligence; 7 items representing product innovation; and 7 items representing competitive advantage. A 5-point Likert scale was used to represent the choices that range from 1(strongly disagree) to 5 (strongly agree). as illustrated in Appendix A

In addition, the questionnaire included demographic characteristics. This research used non-probability sampling method, and convenience sampling technique. The sample size was calculated using an equation that takes a sampling error of  $\pm 5\%$ , a confidence level of 95%, and a maximum population variance of 50%, which leads to a sample size 384, and the results of the research sample can be safely generalized to the entire population. In addition, both content and construct validity tests were carried out. The questionnaire was distributed online in November 2022 to top & middle management who deal with marketing intelligence in telecommunications companies in Egypt such as Vodafone Egypt, Orange Egypt, and Etisalat Misr. The valid collected responses were 384. Cronbach's alpha, Correlation analysis, one-way analysis of variance (ANOVA), and Structural equation modelling were used to analyze the data, using the Statistical Package for the Social Science (IBM SPSS v22) for Windows computer software.

#### 4. Results

# 4.1. Demographic Profile

Regarding the demographic profile of the questionnaire participants, (59%) of the participants are male, in addition, about (75%) of the participants are aged 35 to 44 years old, moreover, about (82%) of respondents have from 5 to less than 15 years of work experience, which indicates that most participants are experienced enough in the telecommunications sector.

## 4.2. Reliability Analysis

Cronbach's alpha was used to assess the reliability of the selected scale through verifying the stability of the measuring tool used.

**Table 1: Reliability Test for Constructs** 

	Constructs	Cronbach's alpha	N of Items
1	Marketing intelligence	0.804	7
2	Product innovation	0.871	7
3	Competitive advantage	0.848	7

Table 1 indicated that competitive advantage, product innovation, and marketing intelligence have a high-reliability coefficient (of 0.848), (0.871), and (0.804) respectively, where Cronbach's alpha and internal consistency based on the corrected correlations are greater than 0.5. Therefore, the surveys are reliable (Hair et al, 2014).

# 4.3. Correlation Analysis

**Table 2: the Pearson Correlations between Constructs** 

	Marketing intelligence	Product innovation	Competitive advantage
Marketing intelligence			
Sig. (2-tailed)			
<b>Product innovation</b>	0.858**		
Sig. (2-tailed)	0.000		
Competitive advantage	0.846**	0.822**	
Sig. (2-tailed)	0.000	0.000	

In Table 2, all three variables are positively correlated with each other, and there was a significant relationship between them at the 0.00 level in the model.

# 4.4. Regression Analysis

# **4.4.1.** Testing the First Hypothesis H1

H1: there is a relationship between marketing intelligence and product innovation.

To test the validity of the first hypothesis (H1), a simple regression model was developed between product innovation as a dependent variable and marketing intelligence as an independent variable.

1	ble 5. Analysis of variance between Marketing Intelligence and Froduct Inno								
	Dependent		Sum of		Mean				
	Variable	Model	Squares	df	Square	${f F}$	P-value		
	D 1 4	Regression	225.86	1	225.86	1070.59	.000a		
	Product innovation	Residual	80.59	382	.211				
	mnovation	Total	306.45	383					

Table 3: Analysis of Variance between Marketing Intelligence and Product Innovation

In Table 3, the model shows that there is a significant relationship between marketing intelligence and product innovation. The significant level is .000. The positive values demonstrate the positive relationship between the variables. In addition, it is also confirmed through (F calculated = 1070.59) which is greater than (F tabulated = 3.021). Moreover, the coefficient of the simple regression model of marketing intelligence proves the significance of the coefficient of the resource ( $\beta$  =0.858). The significant level is 0.000. In addition, it is also confirmed through (T calculated = 32.72) which is greater than (T tabulated = 1.967). The coefficient of determination R-Sq is equal to 0.737, indicating that marketing intelligence accounts for 73.7% of the variation in product innovation which is consistent with (Hegdepatil, 2021; Aripinetal., 2022).

# 4.4.2. Testing the Second Hypothesis H2

**H2**: there is a relationship between product innovation and competitive advantage.

To test the validity of the second hypothesis (H2), a simple regression model was developed between the competitive advantage as a dependent variable and product innovation as an independent variable.

Table 4: Analysis of V	Variance between l	Product Innov	vation and Co	mpetitive Advantage

Dependent Variable	Model	Sum of Squares	df	Mean Square	F	Sig.
G .:::	Regression	169.58	1	169.58	795.5	.000a
Competitive	Residual	81.43	382	0.213		
advantage	Total	251.02	383			

In Table 4, the model shows a significant relationship between product innovation and competitive advantage. The significant level is .000. The positive values demonstrate the positive relationship between the variables. It is also confirmed through (F calculated = 795.5) which is greater than (F tabulated = 3.021). Moreover, the coefficient of the simple regression model of product innovation proves the significance of the coefficient of the resource ( $\beta$  =0.822). The significant level is 0.000. It is also confirmed through (T calculated =28.20), which is greater than (T tabulated = 1.967). The coefficient of determination R-Sq equals 0.676, indicating that product innovation accounts for 67.6% of the variation in competitive advantage which is consistent with previous studies (Falahat, 2020; Aripin et al., 2022).

## 4.4.3. Testing the Third Hypothesis H3

**H3**: there is a relationship between marketing intelligence and competitive advantage.

To test the validity of the third hypothesis (H3), a simple regression model was developed between competitive advantage as a dependent variable and marketing intelligence as an independent variable.

Table 5: Analysis of V	/ariance between	Marketing	Intelligence and	Competitive A	Advantage
	driding Scott Con		micerngence and	Competition	

Dependent Variable	Model	Sum of Squares	df	Mean Square	F	P- value
G	Regression	179.50	1	179.5	958.8	$.000^{a}$
Competitive advantage	Residual	71.51	382	0.187		
auvantage	Total	251.02	383			

In Table 5, the model shows that there is a significant relationship between marketing intelligence and competitive advantage. The significant level is .000. The positive values demonstrate the positive relationship between the variables. It is also confirmed through (F calculated = 958.8), which is greater than (F tabulated = 3.021). Moreover, the coefficient of the simple regression model of marketing intelligence proves the significance of the coefficient of the resource ( $\beta$  =0.846). The significant level is 0.000. It is also confirmed through (T calculated =30.96) which is greater than (T tabulated = 1.967). The coefficient of determination R-Sq is equal to 0.715 which means marketing intelligence accounts for 71.5% of the variation in competitive advantage. This result is also supported by (Falahat, 2020; Aripin et al., 2022).

# 4.5. Structural Equation Model Analysis

To test the research hypotheses, the structural model prescribes the role of product innovation in the relationship between marketing intelligence and consumer competitive advantage, and the interrelationships between constructs. Structural equation modelling (SEM) is employed to determine if the data fit the hypothesized model by using the AMOS v22 program. In addition, SEM was used to confirm the structural relationship in the model. The properties of the research model are as follows: one construct is exogenous marketing intelligence and two are endogenous (product innovation and competitive advantage).

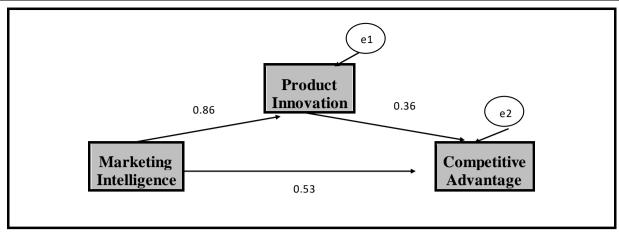


Figure 1: the Path Diagram for marketing intelligence, product innovation, and competitive advantage

Figure 1 shows that all hypotheses are supported, with all parameter estimates being significant and having the expected signs (e.g., positive effect).

H				Estimate	S.E.	C.R	P	results
H1	Product innovation	<	Marketing intelligence	0.85	.030	32.7	***	supported
Н2	Competitive advantage	<	Product innovation	0.53	0.05	10.6	***	supported
НЗ	Competitive advantage	<	Marketing intelligence	0.36	0.04	7.32	***	supported

**Table 6: Results of Structural Model Assessment** 

From Table 6, the result suggests that all signs of associations between the constructs are in congruence with the hypothesized relationship, which supports the validity of the constructs composing the model, and all hypotheses are supported.

#### 4.5.1. Mediation

**H4**: Product Innovation mediates the Relationship between Marketing Intelligence and Competitive Advantage.

To test the validity of the fourth hypothesis (H4), The SEM was used to get an unbiased estimation of the mediating effect of latent variables, and the potential indirect (mediating) effects can be reflected by their direction of effects, magnitude, and their level of significance (Koufteros, 2009). Regarding the research model, there is a possible full indirect effect (full mediation) between marketing intelligence and competitive advantage: Marketing intelligence  $\rightarrow$  Product innovation  $\rightarrow$  Competitive advantage, where the relationship between marketing intelligence and competitive advantage is possibly fully mediated by product innovation.

Relationship	Direct effect		Indirect effect (mediating)		Total effect	
	Value	P-value	Value	P-value	Value	P-value
Marketing intelligence → Competitive advantage	0.532	0.001	0.313	0.001	0.846	.001

Table 7: The Results of Direct, Indirect (Mediating), and Total Effects.

In Table 7, The results of the standardized indirect effects (two-tailed significance) indicate that the path Marketing intelligence → Competitive advantage, the indirect effect of marketing intelligence on competitive advantage is 0.313, and the two-tailed significance (P-value=0.001) is significant at 95 %. Meaning that there is a full mediation effect, where product innovation mediates the relationship between marketing intelligence and competitive advantage. Therefore, the null hypothesis (H0: there is no indirect path between marketing intelligence and competitive advantage) is rejected. In summary, product innovation is an effective mediator. Therefore, the hypothesis "H4: product innovation mediates the relationship between marketing intelligence and competitive advantage" is supported.

# 4.6. Descriptive Analysis for Marketing Intelligence, Product Innovation, and Competitive Advantage

Descriptive statistics, including the mean, standard deviation, and coefficient of variation, for all research variables are carried out. The following Table 8 shows the descriptive results of the constructs.

**Table 8: Descriptive Results of the Constructs** 

Constructs	Mean	SD	C.V
Marketing Intelligence	4.0417	0.49363	0.244
Product Innovation	4.1406	0.56084	0.315
Competitive Advantage	4.0948	0.56083	0.315

The scale mean for marketing intelligence is (3.56) with a coefficient of variance (of 59%), the scale means for product innovation is (3.66) with a coefficient of variance (80%), and the scale means for competitive advantage is (3.86) with a coefficient of variance (65%), it is inferred that the respondents showed a high level of agreement toward their companies' activities related to marketing intelligence, product innovation, and competitive advantage. In addition, Higher marketing intelligence (mean = 3.56) can ensure higher product innovation (mean = 3.66), and higher competitive advantage (mean = 3.86).

#### 5. Discussion and Conclusion

The main objective of this study is to trace the impact of marketing intelligence and product innovation on competitive advantage, over a sample of telecommunications companies in Egypt. This should give a better insight into the impact of marketing intelligence and product innovation on competitive advantage. The findings reveal that marketing intelligence and product innovation have a substantial impact on a company's capacity to obtain a competitive advantage. By developing a new model of how product innovation mediates the relationship between marketing intelligence and competitive advantage, this study adds to the existing literature by highlighting the impact of marketing intelligence on product innovation and competitive advantage in telecommunications companies. The findings show that marketing intelligence has a direct effect on competitive advantage and an indirect effect on competitive advantage through product innovation, which means product innovation, mediates the relationship between marketing intelligence and competitive advantage. Therefore, this research recommends telecommunications companies to use the structured model in the current study as a strategy, to gain a competitive advantage, which is affected by marketing intelligence and product innovation to distinguish their brands from their competitors. However, this research has some limitations that may prevent results from being generalized to a broader setting. As it only includes telecommunications firms in Egypt, it excludes other types of organizations. Furthermore, the study was conducted just from the standpoint of the management; the customers' perspective on this subject was not addressed. Therefore, future research can be extended to examine such limitations.

#### References

- Al-Hashem, A. O. (2020). Mediation Impact of Marketing Intelligence in the Relationship between Technology-based Knowledge Sharing and Product Innovation. *TEM Journal*, 9(2), 688–693.
- Al-Zoubi, A. F. (2016). The Impact of Marketing Intelligence on Innovation and Technological Entrepreneurship in Jordan Telecommunication Company (Empirical Study). *Journal of Marketing and Consumer Research, An International Peer-reviewed Journal*, 21.)
- Aripin, Z., Suganda, U. K., & Kusumah, A. Z. (2022). Marketing Intelligence: Innovation Ability to Anticipate Global Competition. *International Journal of Research in Business and Social Science*, (2147-4478), 11(1), 328–339.
- Jason L. G. Braasch (2020). Advances in research on internal and external factors that guide adolescents' reading and learning on the Internet (Avances en la investigación de los factores internos y externos que condicionan la lectura y el aprendizaje de los adolescentes a través Internet), *Journal for the Study of Education and Development*, 43:1, 210-241, DOI: 10.1080/02103702.2019.1690851
- Cao, G.; Duan, Y.; Cadden, T. (2019). The Link between Information Processing Capability and Competitive Advantage Mediated through Decision-Making Effectiveness. *Int. J. Inf. Manag.* 44, 121–131.
- Charterina, J. (2018). Mediation Effects of Trust and Contracts on Knowledge-Sharing and Product Innovation: Evidence from the European Machine Tool Industry. *European Journal of Innovation Management*, 21(2), 274–293.
- Chatterjee S., Chaudhuri R., Vrontis D. (2021).. Knowledge Sharing in International Markets for Product and Process Innovation: Moderating Role of Firms' Absorptive Capacity. *Int. Mark. Rev.* 10.1108/IMR-11-2020-0261
- Chatzoglou, P. (2018). The Role of Innovation in Building Competitive Advantages: an Empirical Investigation. *European Journal of Innovation Management*, 21(1), 44–69.

- Cheraghalizadeh, R.; Olya, H.; Tumer, M. (2021). The Effects of External and Internal Factors on Competitive Advantage— Moderation of Market Dynamism and Mediation of Customer Relationship Building. *Sustainability*, 13, 4066.
- Daabes, A. S. A. (2017). Customer-based Perceptual Map as a Marketing Intelligence Source. *International Journal of Economics and Business Research*, 13(4), 360–379.
- Davenport, T. (2020). How Artificial Intelligence Will Change the Future of Marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42.
- Falahat, M.; Ramayah, T.; Soto-Acosta, P.; Lee, Y.-Y. (2020). SMEs Internationalization: The Role of Product Innovation, Market Intelligence, Pricing, and Marketing Communication Capabilities as Drivers of SMEs' International Performance. *Technol. Forecast. Soc. Change*, 152, 119908.
- Gómez Prado, Romina & Alvarez-Risco, Aldo & Cuya-Velásquez, Berdy & Anderson-Seminario, Maria & Del-Aguila-Arcentales, Shyla & Yáñez, Jaime. (2022). Product Innovation, Market Intelligence, and Pricing Capability as a Competitive Advantage in the International Performance of Startups: Case of Peru. *Sustainability*. 14. 10703. 10.3390/su141710703.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Essex: Pearson Education Limited.
- Hegdepatil, P. (2021). Business Intelligence-based Novel Marketing Strategy Approach using Automatic Speech Recognition and Text Summarization. *Proceedings 2021 2nd International Conference on Computing and Data Science*, CDS 2021, 595–602.
- Hendar, H. (2020). Market Intelligence on Business Performance: The Mediating Role of Specialized Marketing Capabilities. *Journal of Intelligence Studies in Business*, 10(1), 42–58.
- Jain, P. (2017). Exploring the Mediating Role of Intellectual Capital and Competitive Advantage on the Relation between CSR and Financial Performance in SMEs. *Social Responsibility Journal*, 13(1), 1–23.
- Jeffery, R., Neuhaus, H., Raskin, M., Schrimpf, A., Teo, A., & Vallence, C. (2016). *Market Intelligence Gathering at Central Banks*. Switzerland: Bank of International Settlements
- Jugend, D. (2018). The Role of Cross-Functional Integration in New Product Development: Differences between Incremental and Radical Innovation Projects. *Innovation: Management, Policy and Practice*, 20(1), 42–60.
- Kanwal, S. (2017a). The role of marketing intelligence in brand positioning: Perspective of marketing professionals. *Journal of Cases on Information Technology*, 19(1), 24–41.
- Kanwal, S. (2017b). The Role of Organizational Culture and Process-Structure in Marketing Intelligence: Perspective of IT Professional. *Journal of Cases on Information Technology*, 19(1), 60–78.
- Konishi, R. (2020). Digital Intelligence Banking of Adaptive Digital Marketing with Life Needs Control. *Frontiers in Artificial Intelligence and Applications*, 161–173.
- Koufteros, X., Babbar, S., & Kaighobadi, M. (2009). A Paradigm for Examining Second-Order Factor Models Employing Structural Equation Modeling. *International Journal of Production Economics*, 120(2), 633-652.
- Lee, S. (2017). The Effect of New Product Design and Innovation on South Korean Consumer's Willingness to Buy. *Asia Pacific Journal of Marketing and Logistics*, 29(1), 98–113.
- Mandal, P. C. (2018). Marketing Information and Marketing Intelligence: Roles in Generating Customer Insights. *International Journal of Business Forecasting and Marketing Intelligence*, 4 (3), 311.
- Marshall, G. (2019). Innovation and Competition: The Role of the Product Market. *International Journal of Industrial Organization*, 65, 221–247.
- Mostaghel, R., Oghazi, P., Patel, P. C., Parida, V., & Hultman, M. (2019). Marketing and Supply Chain Coordination and Intelligence Quality: A Product Innovation Performance Perspective. *Journal of Business Research*, 101(February), 597–606.

- Murmura F., Bravi L., Santos G. (2021). Sustainable Process and Product Innovation in the Eyewear Sector: The Role of Industry 4.0 Enabling Technologies. *Sustainability* 13:365. 10.3390/su13010365
- Nghia, T. L. H. (2018). External Stakeholders' Roles and Factors Influencing Their Participation in Developing Generic Skills for Students in Vietnamese Universities. *Journal of Education and Work*, 31(1), 72–86.
- Noviyanti, I. (2020). Marketing Intelligence Implementation for Supply Chain Management of Mix Products that Affect the Purchasing Decision on Citra Karisma, Yogyakarta. *International Journal of Supply Chain Management*, 9(3), 1235–1242.
- Pinarbasi, F. (2019). Transformation of marketing with technology: Case approach for artificial intelligence. *Handbook of Research on Strategic Fit and Design in Business Ecosystems*, 144–165.
- Premkumar, P., & Ramkumar, P. (2019). Literature Review of Locomotive Assignment Problem from Service Operations Perspective: The Case of Indian Railways. *IIM Kozhikode Society & Management Review*, 8(1), 74-86.
- Schubert, T. (2020). Product Innovation and Educational Diversity in Top and Middle Management Teams. *Academy of Management Journal*, 63(1), 272–294.
- Serdari, T. (2020). Luxury Marketing Strategies Based on Cultural Intelligence. *Palgrave Advances in Luxury*, 141–166.
- Snihur, Y. (2019). Searching for Innovation: Product, Process, and Business Model Innovations and Search Behavior in Established Firms. *Long Range Planning*, 52(3), 305–325.
- Song, W. (2020). Environmental Innovation Practices and Green Product Innovation Performance: A Perspective from Organizational Climate. *Sustainable Development*, 28(1), 224–234.
- Utami, D., Mulyono, L. E. H., & Furkan, L. M. (2022). The Effect of Market Orientation and Product Innovation to Increase Marketing Performance Moderated by Creativity. *International Journal of Social Science Research and Review*, 5(2), 20-36.
- Wijekoon, A., Salunke, S., & Athaide, G. A. (2021). Customer heterogeneity and innovation-based competitive strategy: A review, synthesis, and research agenda. *Journal of Product Innovation Management*, 38(3), 315-333.
- Zhang, H. (2018). Product Innovation Based on Online Review Data Mining: a Case Study of Huawei Phones. *Electronic Commerce Research*, 18(1), 3–22.

# Appendix A

# **Constructs and Items**

Constructs	Items - Referred to
Constructs  Marketing Intelligence	<ol> <li>Our company gathers information about market needs to exploit opportunities (AL-Hashem, 2020).</li> <li>Our company can meet market needs because it analyzes the gathered information related to business partners (AL-Hashem, 2020).</li> <li>Our company employs advanced technology to collect essential marketing information related to customers (AL-Hashem, 2020).</li> <li>Our company employs advanced technology to collect essential marketing information related to competitors (AL-Hashem, 2020).</li> <li>our company employs advanced technology to collect essential marketing information related to provided products and services (AL-Hashem, 2020).</li> <li>Our company is continuously gathering information about the changes happening in the market (AL-Hashem, 2020).</li> <li>The company employs advanced technology to analyze information, which</li> </ol>
	is gathered from different sources in the market to facilitate future decisions (AL-Hashem, 2020).
Product Innovation	<ol> <li>Our company produces new products or services that meet market demand (Murmura et al., 2021).</li> <li>Our company is continuously enhancing the quality of the provided product or services as well as adding new attributes (Chatterjee et al., 2021).</li> <li>Our company is continuously providing innovative products to the market (AL-Hashem, 2020).</li> <li>Our company's products are more innovative than competitors (AL-Hashem, 2020).</li> <li>Our company is regularly improving existing products according to the market needs (Aripin et al., 2022).</li> <li>Our company is regularly introducing products that are innovative in their designs and specifications (AL-Hashem, 2020).</li> <li>Our company's products have a higher market share than competitors (AL-Hashem, 2020).</li> </ol>
Competitive Advantage	<ul> <li>15. Our company can adapt to trends (Daabes, 2017)</li> <li>16. Our company can provide customers with a new value that cannot be imitated by competitors (AL-Hashem, 2020)</li> <li>17. Our company can seize opportunities (Aripin et al., 2022).</li> <li>18. Our company can counteract threats (Aripin et al., 2022).</li> <li>19. Our company can provide customers with a value that is new and cannot be imitated by competitors (AL-Hashem, 2020)</li> <li>20. Our company can perform better than its competitors (Hendar, 2020).</li> <li>21. Our company can face the changes that will happen in the market (Gómez et al., 2022).</li> </ul>