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The Influence of Digitalization on Export Performance: The Mediation Role of Market Adaptation Speed in the Wig Industry in Purbalingga

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ABSTRACT

This study examines the impact of digitalization on export performance, focusing on the mediating role of market adaptation speed in the wig industry in Purbalingga, Indonesia. In the era of Industry 4.0, digitalization has become an important factor in changing the global business landscape, significantly affecting the export sector. This study aims to fill the gap in understanding the underlying mechanism of the relationship between digitalization and export performance, especially in labor-intensive industries in developing countries. Using a quantitative approach and data from 50 respondents from several industries engaged in wig exports. This study found that digitalization has a positive effect on the speed of market adaptation and export performance. In addition, the speed of market adaptation mediates the relationship between digitalization and export performance, highlighting the importance of rapid market response in improving global competitiveness. These findings provide valuable insights for industry players and policymakers to optimize digital strategies and maintain a competitive advantage in global markets.

Keywords: Digitalization,Market Adaptation Speed,Export Performance

1. Introduction

In the era of the industrial revolution 4.0, digitalization has become the main catalyst in the transformation of the global business landscape, with the impact increasingly felt after the COVID-19 pandemic (World Bank, 2023). The export sector, as a vital component in a country's economic growth, has undergone significant changes due to the acceleration of digital technology adoption (UNCTAD, 2024). Recent data shows that companies that adopt digital technology have a 30% higher probability of exporting compared to those that do not (McKinsey Global Institute, 2023). However, amid this global trend, labor-intensive industries in developing countries face unique challenges in adopting and utilizing digital technologies (ILO, 2024).

The wig industry in Purbalingga, Indonesia, which has long been known as a global production center with a 20% contribution to the world market (Ministry of Industry of the Republic of Indonesia, 2023), is now at a critical intersection between tradition and modernization. On the one hand, hand skills that have been a competitive advantage of this industry for many years are increasingly threatened by automation (Sutanto & Hermawan, 2024). On the other hand, the

global market demand for product customization and delivery speed is increasing, driving the need for the adoption of digital technology (Widodo et al., 2023).

Although previous research has explored the relationship between digitalization and export performance (Johnson, 2022; García-Sánchez et al., 2023), there is still a gap in understanding of the mechanisms underlying the relationship, especially in the context of labor-intensive industries in developing countries. Li and Zhang (2023) have identified a potential role of market adaptation speed as mediators, however, their study is limited to the general manufacturing sector in China. How this dynamic operates in an industry with unique characteristics such as wigs in Indonesia is still unclear.

Furthermore, while digitalization is often associated with increased productivity, recent research by Chen et al. (2022) suggests there is a "digital productivity paradox" where excessive digital investment can result in declining returns. This phenomenon has not been explored in the context of labor-intensive industries in developing countries, creating an important gap in the literature.

This study aims to fill the gap by investigating the mediating role of market adaptation speed in the relationship between digitalization and export performance in the wig industry in Purbalingga. By understanding these dynamics, the research is expected to provide valuable insights for industry players and policymakers in navigating an increasingly digital and competitive business landscape, while maintaining the skills-based competitive advantage that has long characterized the industry (Lee & Wong, 2024).

More than just a theoretical contribution, the study has significant practical implications. With Indonesia's wig industry facing increasingly stiff competition from countries such as China and Vietnam (Asian Development Bank, 2024), a better understanding of how to effectively leverage digitalization could be key to maintaining Indonesia's position as a major player in the industry's global value chain.

2. Literature Review

2.1. Digitalization

Digitalization has become a transformative phenomenon that is changing the global business landscape. Verhoef et al. (2021) define digitalization as the process of adopting digital technologies that change business models and create new opportunities to create value. In line with this, Brennen & Kreiss (2016) emphasizes that digitalization is not only about technology, but also about how the domain of social life is restructured around digital communication infrastructure. This perspective is reinforced by Matt et al. (2015) who argue that digitalization involves fundamental changes in the company's core operations, products and services, and organizational structure.

In the context of international business, digitalization has far-reaching implications. Nambisan et al. (2019) identified that the adoption of digital technologies allows companies to improve operational efficiency, expand market reach, and create new value propositions. These findings are supported by a study by Li et al. (2018) which shows that digitalization can increase company productivity and innovation, especially in developing countries. However, Cenamor et

al. (2019) remind that the benefits of digitalization are not automatic; companies, especially SMEs, need to adopt and integrate digital technologies effectively to improve their competitiveness in the international market.

While the potential benefits are great, digitalization also brings challenges, especially for SMEs. Eller et al. (2020) underline that SMEs often face obstacles in the implementation of digitalization due to limited resources and expertise. In line with this, Ferreira et al. (2019) emphasized the importance of developing digital capabilities that are in line with SME business strategies. They argue that SMEs need to adopt a gradual approach to digitalization, focusing on the areas that provide the greatest added value to their businesses.

Klein & Todesco (2021) add a new dimension to the discussion about digitalization by introducing the concept of "digital maturity". They argue that a company's level of digital maturity, which includes technological, organizational, and cultural aspects, has a significant impact on the success of digitalization initiatives. Their study shows that companies with a higher level of digital maturity tend to be more successful in leveraging digital technology to improve their business performance, including in the context of exports.

2.2 Export Performance

Export performance is a crucial indicator in measuring a company's success in the international market. Chen et al. (2016) define export performance as the extent to which a company's objectives, both economic and strategic, to export products to foreign markets are achieved through the planning and implementation of export strategies. This definition emphasizes the importance of strategic planning in export activities. Shoham (1998) expands this understanding by proposing that export performance can be measured through three main dimensions: export sales, export profitability, and export growth.

The factors affecting export performance have been the subject of extensive research. Leonidou et al. (2002) identified various internal and external factors that play a role, including company characteristics, export marketing strategies, and market environment. This finding is reinforced by a review of the literature by Zou & Stan (1998) which shows that the capabilities and competencies of firms have a consistent positive influence on export performance. In the context of SMEs, Lu & Beamish (2001) found that although internationalization can improve company performance, there are initial challenges related to liability of newness that need to be addressed.

Paul et al. (2017) bring a new perspective by emphasizing the importance of innovation and entrepreneurial orientation in improving the export performance of SMEs. They argue that SMEs that are innovative and proactive in seeking opportunities in the international market tend to have better export performance. In line with this, Pla-Barber & Alegre (2007) found a positive relationship between innovation intensity and export performance in technology-based SMEs.

Cavusgil & Knight (2015) introduced the concept of "born global firms" - companies that have been internationally oriented since their inception. They argue that these companies, often SMEs, can achieve high export performance by leveraging digital technology and global networks.

These findings reinforce the argument that in the digital age, company size is no longer a major obstacle to success in international markets.

Furthermore, Stoian et al. (2011) emphasized the importance of contextual factors in understanding export performance. They argue that industry characteristics, domestic market conditions, and government policies have a significant impact on SME export performance. Therefore, they suggest a holistic approach in analyzing and improving export performance, taking into account both the company's internal factors and the external factors of the business environment.

2.3 Digitalization and Export Performance

Digitalization and Export Performance

Digitalization has become a key factor in improving the competitiveness of companies in the global market. Rahman et al. (2023) conducted a comprehensive study of 500 SMEs in five developing Southeast Asian countries and found that the adoption of digital technology has a significant positive impact on export performance. They identified that companies that adopted e-commerce platforms experienced an average increase in export sales of 23% in the first two years after implementation.

Furthermore, Nguyen and Le (2024) conducted a five-year longitudinal study of 200 manufacturing companies in Vietnam. They found that digitizing production processes and supply chain management can increase operational efficiency by up to 30%, which is positively correlated with an increase in export volumes by 15-20%. The study emphasizes the importance of investing in digital technologies such as the Internet of Things (IoT) and big data analytics to maintain competitiveness in international markets.

The relationship between digitalization and export performance has become an increasingly important research focus in recent years. Rahman et al. (2023) found a significant positive impact of the adoption of digital technology on the export performance of SMEs in Southeast Asia. This finding is reinforced by a study by Nguyen and Le (2024) which shows that digitizing production processes and supply chain management can increase operational efficiency by up to 30%, which is positively correlated with an increase in export volume.

Then, García-Sánchez et al. (2023) analyzed the impact of digital transformation on the export performance of global manufacturing companies. They found that companies that adopted digital technologies such as blockchain and AI experienced an 18-25% increase in export productivity within two years of implementation.

However, Chen et al. (2022) provide a more nuanced perspective. In their study of 1000 companies in China's manufacturing sector, they found that the relationship between digital investment and export performance follows an inverted U-curve. Optimal digital investment is in the range of 8-12% of the company's annual revenue, where investment outside this range shows a marginal decline in improving export performance.

2.4 Speed of Market Adaptation

The speed of market adaptation has emerged as a critical capability in an increasingly dynamic and uncertain business environment. Teece et al. (1997) introduced the concept of "dynamic capabilities" which emphasizes the importance of a company's ability to adapt quickly to changes in the business environment. This concept was then expanded by Day (2011) who defined the speed of market adaptation as the ability to detect and respond to market changes faster than competitors.

Empirical research has shown a significant impact of the speed of market adaptation on company performance. Homburg et al. (2007) found that companies with high market adaptation rates tend to perform better in dynamic environments. This finding is reinforced by Zhou et al. (2010) who show that the speed of market adaptation mediates the relationship between firm capabilities and international performance. They argue that the ability to adapt quickly to market changes allows companies to exploit opportunities and address threats in international markets more effectively.

In the digital era, the speed of market adaptation is becoming increasingly crucial. Helfat & Raubitschek (2018) argue that rapid adaptability is essential in a business environment characterized by rapid technological changes and consumer preferences. They emphasized that companies need to develop "digital dynamic capabilities" to stay competitive. In line with this, Vial (2019) shows that companies that are able to integrate digital technology into their business processes quickly tend to have a greater competitive advantage.

Wei & Wang (2011) added a new dimension to the discussion of the speed of market adaptation by introducing the concept of "competitive response capability". They argue that the speed of market adaptation is not only about responding to changing consumer preferences, but also about how companies respond to competitors' actions quickly and effectively. Their study shows that companies with strong competitive response capabilities tend to perform better in highly competitive markets.

Furthermore, Wilden & Gudergan (2015) explores the relationship between market adaptation speed, marketing capabilities, and company performance. They found that the speed of market adaptation had a significant moderation effect on the relationship between marketing capabilities and company performance. In particular, they argue that in a highly dynamic environment, companies with a high rate of market adaptation can more effectively leverage their marketing capabilities to improve performance.

Finally, Narver et al. (2004) introduced the concept of "market-driving" as a proactive approach to market adaptation. They argue that companies that not only respond to market changes but also actively shape customer preferences and market structures tend to have a more sustainable competitive advantage. This concept expands the understanding of the speed of market adaptation from simply being reactive to being proactive and transformative.

3. Research Methodology

The type of research used in this study is causal associative research with quantitative techniques. According to Suliyanto (2018:15), the associative method is a research that aims to analyze the relationship or influence between two or more variables. The location of the research was carried out in Purbalingga, Central Java. With the population in this study are foreign and domestic companies engaged in the export of wigs in Purbalingga. The data collection technique in this study used a questionnaire distributed to 50 respondents consisting of several employees and export and import staff of foreign and domestic wig factories in Purbalingga. By using this method, it is hoped that it can make it easier for respondents to fill out the questionnaire so that the results of the research can be obtained accurately. The data analysis technique used in this study uses the path analysis technique, because path analysis not only tests the direct influence, but also explains the indirect influence given by the free variable through the intervening variable on the bound variable. Then to facilitate data analysis, researchers use *IBM SPSS software* Version 26.

4. Results and Discussion

Model Summary

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825a	.681	.674	.539

a. Predictors: (Constant), Digitalization

Coefficientsa

Type		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.090	1.798		1.719	.092
	Digitization	.852	.084	.825	10.116	.000

a. Dependent Variable: Export Performance

Calculating the Path Coefficient

First Model Path Coefficient:

1. Referring to the output of the Regression Model I in the "Coefficients" table, it can be seen that the significance value of the variable X = 0.000 is less than 0.05. These results

provide a conclusion that Model I Regression, namely variable X, has a significant effect on Y.

2. The magnitude of the R Square value in the Model Summary table is 0.681, which shows that the contribution of the influence of variable X on Y is 68.1% while the remaining 31.9% is the contribution of other variables that are not included in the study. Meanwhile, the e1 value can be searched with the formula e1=√(1-0.681)=0.564

Model Summary

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903a	.815	.807	.374

]

Coefficientsa

Type		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.773	1.287		2.155	.036
	Digitization	.596	.104	.639	5.759	.000
	Export Performance	.271	.100	.300	2.707	.009

a. Dependent Variable: Speed of Market Adaptation

Calculating the Path Coefficient

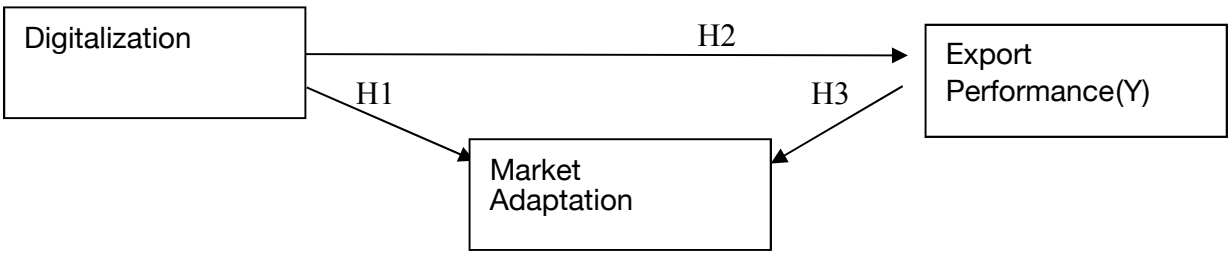
Second Model Path Coefficient:

1. Based on the output of the Model II Regression in the "Coefficients" table, it can be seen that the significance values of the two variables, namely X= 0.000 and Y= 0.009, are

smaller than 0.05. This result concludes that Model II Regression, namely variables X and Y, has a significant effect on Z.

2. The magnitude of the R Square value in the "Model Summary" table is 0.815, which shows that the contribution of X and Y to Z is 81.5% while the remaining 18.5% is the contribution of other variables that are not studied. Meanwhile, for the value of e2=√(1-0.815)=0.430

Research Model



Mediation Path (H4) : X ⟶ Z ⟶ Y

HYPOTHESIS TEST STAGE

1. Testing H1 (X → Z):
   Significance value = 0.000 < 0.05, Coefficient value = 0.825, Result: H1 ACCEPTED
   Interpretation: Digitalization has a significant and positive direct effect on Market Adaptation Speed

2. Testing H2 (X → Y):
   Significance value = 0.000 < 0.05, Coefficient value = 0.639, Result: H2 ACCEPTED
   Interpretation: Digitalization has a significant and positive direct effect on Export Performance
3. Testing H3 (Z → Y):
   Significance value = 0.009 < 0.05, Coefficient value = 0.300, Result: H3 ACCEPTED
   Interpretation: Market Adaptation Speed has a significant and positive direct effect on Export Performance

4. Testing H4 (X → Z → Y):
   Direct effect (X → Y) = 0.639, Indirect effect (X → Z → Y) = 0.825 × 0.300 = 0.248,
   Totaleffect = 0.639 + 0.248 = 0.887, Result: H4 ACCEPTED
   Interpretation: Digitalization has a significant effect on Export Performance both directly andthrough Market Adaptation Speed mediation

5. Conclusion

Based on the research findings, all hypotheses (H1, H2, H3, and H4) are **accepted**. Digitalization has a significant influence on both **Market Adaptation Speed** and **Export Performance**. Furthermore, **Market Adaptation Speed** significantly mediates the relationship between **Digitalization** and **Export Performance**, indicating that the faster a company adapts to the market, the greater the impact of digitalization on enhancing the company's export performance.

References

Brennen, J. S., & Kreiss, D. (2016). Digitalization. In K. B. Jensen, E. W. Rothenbuhler, J. D. Pooley, & R. T. Craig (Eds.), The International Encyclopedia of Communication Theory and Philosophy (pp. 1-11). Wiley-Blackwell.

Cavusgil, S. T., & Knight, G. (2015). The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization. Journal of International Business Studies, 46(1), 3-16.

Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity.Journal of Business Research, 100, 196-206.

Chen, J., Sousa, C. M., & He, X. (2016). The determinants of export performance: a review ofthe literature 2006-2014. International Marketing Review, 33(5), 626-670.

Day, G. S. (2011). Closing the marketing capabilities gap. Journal of Marketing, 75(4), 183-195.

Eller, R., Alford, P., Kallmünzer, A., & Peters, M. (2020). Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization. Journal of Business Research, 112, 119-127.

Ferreira, J. J., Fernandes, C. I., & Ferreira, F. A. (2019). To be or not to be digital, that is the question: Firm innovation and performance. Journal of Business Research, 101, 583-590.

Helfat, C. E., & Raubitschek, R. S. (2018). Dynamic and integrative capabilities for profitingfrom innovation in digital platform-based ecosystems. Research Policy, 47(8), 1391-1399.

Homburg, C., Grozdanovic, M., & Klarmann, M. (2007). Responsiveness to customers and competitors: the role of affective and cognitive organizational systems. Journal of Marketing, 71(3), 18-38.

Jayachandran, S., Hewett, K., & Kaufman, P. (2004). Customer response capability in a sense-and-respond era: The role of customer knowledge process. Journal of the Academy of MarketingScience, 32(3), 219-233.

Klein, V. B., & Todesco, J. L. (2021). COVID-19 crisis and SMEs responses: The role of digital transformation. Knowledge and Process Management, 28(2), 117-133.

Suliyanto (2018). Business Research Methods for Thesis, Thesis, & Dissertation. Yogyakarta: Andi Offset.