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THE EFFECT OF DIGITAL TECHNOLOGY ON OPERATIONAL PERFORMANCE IN THE FOOD AND BEVERAGE INDUSTRY (FMCG) MEDIATED BY DIGITAL COMPETENCY, SUPPLY CHAIN CAPABILITY, AND ORGANIZATIONAL READINESS IN JAKARTA, TANGERANG, AND DEPOK

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Keywords
Digital technology, operational performance, digital competency, supply chain capability, organizational readiness

ABSTRACT
The application of digital technology in the food and beverage industry has benefits such as improving product quality, reducing energy consumption, and optimizing processes. This study aims to analyze the positive influence of Digital Technology on Operational Performance, Supply Chain Capabilities, and Digital Competition, as well as evaluate the impact of mediation by Digital Competency and moderation by Organizational Readiness in this context. Data was collected through a cross-sectional questionnaire. The results of regression analysis show that Digital Technology (TD) has a significant positive impact on Operationsional Performance (KOP) directly and through the mediation of supply chain capability (KRP), digital competency (KD), and organizational readiness (KOG). The correlation between TD and KOP of 0.763 shows a strong positive relationship, indicating that the increase in the implementation of digital technologies is closely related to the improvement of digital competence. The managerial implications of this study emphasize that organizations must adopt a holistic approach to digital transformation, which includes the development of supply chains capabilities, employee digital competencies, and organization readiness.

INTRODUCTION

A supply chain is an organizational system in which there are various kinds of activities, which include information, funds, and other resources that are interrelated in the movement of a product or service from suppliers to consumers or customers (Tunjang, 2022). Supply chain management also involves coordinating business relationships between participating organizations and companies, including the management of raw materials and materials, business information, and financial flows. The supply chain in Indonesia is the backbone of Indonesia's economy, even though the logistics industry still has many shortcomings in the logistics sector in this country of more than 17,000 islands, due to unconnected national supply chain information (East Ventures, 2023). This poses a challenge to the distribution flow.

Entering the era of digitalization, also known as industry 4.0, logistics sector players are required to understand various developments to be properly utilized by business actors. Technology and access to information play a very big role in determining the progress of a nation so that Indonesia can continue to develop and compete with other nations in the world. One of the Industrial Revolution 4.0 in Indonesia is applied in the food and beverage industry sector which is considered to have a major impact

on the country's progress. Industry 4.0 applies digital technologies that can be utilized such as the Internet of Things (IoT), Big Data Analytics, cloud logistics, and robotics and automation which are considered to have the potential to transform food and beverage manufacturing factories sustainably (Susanti & Ika, 2022). The application of digital technology in the food and beverage industry has benefits such as improving product quality, reducing energy consumption, and optimizing processes. The use of this technology is important to remain competitive and meet the growing consumer preferences, especially in the FMCG or Fast Moving Consumer Goods industry where consumer demand moves very quickly, so the distribution flow is also demanded quickly (Pahlephi, 2023). Digital transformation has become a transformative opportunity for the food and beverage industry, driving innovation, efficiency, and customer orientation. Businesses that adopt digital technology and strategies will benefit from better operational processes, increased market reach, and higher customer satisfaction (Idebiz, 2024).

Compared to other countries, Indonesia can be said to still lack in the development of technological infrastructure and lack of human resources who are experts in technology (AWALAN (Aksara Kawan LAN), 2023). The implementation of industry 4.0 in the supply chain provides many advantages for companies, namely with wider connectivity, companies can monitor and optimize their production systems in real-time, reduce production costs, and improve production effectiveness and efficiency. Industry 4.0 aims to increase the competitiveness of Indonesia's industry in the global market.

The digital divide between urban and rural areas is still occurring in Indonesia. Almost 80 percent of Indonesia's population in rural Sumatra, Java, and Bali does not have internet access. In addition, 60 to 70 percent of Indonesia's people living in the eastern region also do not have an adequate internet connection (East Ventures, 2023). Some other factors that cause the digital divide include education, age, financial background (Setiawan et al., 2022).

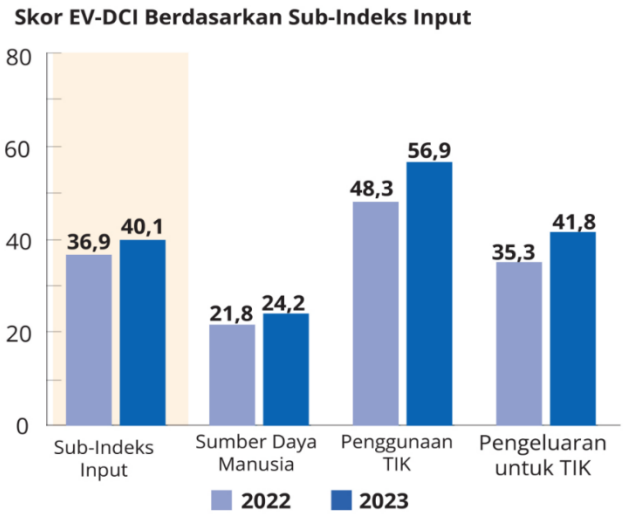

Figure 1. Comparison of Digital Competitive Index Scores in Indonesia in 2022 and 2023

Figure 1 shows the readiness of human resources, the use of digital technology, and expenditures related to digital technology. An increase of 3.2 points from 2022 in the input sub-index and reached 40.1 in 2023 (East Ventures, 2023). The lack of digital knowledge and limited technology adoption in Indonesia is illustrated by the digital literacy index which is still below average. Knowledge, skills and capabilities from resources in Indonesia are still lagging behind (Ahdiat, 2021). This hinders the adoption of technology and causes Indonesia to lack skilled digital talent (Santoso, 2022).

Digital competencies include knowledge, skills, and the ability to use digital technologies effectively. Digital competencies include an understanding of how technology works, the ability to implement and manage that technology, and the ability to solve technology-related problems. Operational performance is a measure of how efficiently and effectively an organization carries out its processes. This can include a variety of indicators such as productivity, product quality, speed of service, and operating costs. In addition, operational performance also involves resource management,

workflow management, quality control, and performance measurement (PuskoMedia Indonesia, 2023). The latest study underscores the need for further research on digital competencies in operational performance (Hautala-Kankaanpää, 2023).

Based on the background that has been explained, this study aims to analyze the positive influence of Digital Technology on Operational Performance, Supply Chain Capabilities, and Digital Competition, as well as evaluate the impact of mediation by Digital Competency and moderation by Organizational Readiness in this context. Focusing on the food and beverage industry in Jakarta, Tangerang, and Depok, this study collected data through a cross-sectional questionnaire to test the relationship between these variables. The study also has theoretical benefits by providing guidance for further studies on the adoption of digital technology in the supply chain, as well as managerial benefits for business owners in improving operational performance through the effective application of digital technology.

The hypotheses used in this study are:

1) H1: Digital Technology has a positive impact on Operational Performance
2) H2. Digital Technology has a positive impact on Supply Chain Capabilities
3) H3. Digital Technology has a positive impact on Digital Competencies
4) H4. Digital Technology has a positive impact on Organizational Readiness
5) H5. Supply Chain Capabilities Have a Positive Impact on Operational Performance
6) H6. Digital Competencies have a positive impact on Operational Performance
7) H7. Organizational Readiness has a positive impact on Operational Performance
8) H8. Positive impact of digital technology on Operational Performance mediated by Supply Chain Capabilities
9) H9. Positive impact of digital technology on Operational Performance mediated by Digital Competence
10) H10. Positive Impact of Digital Technology on Operational Performance Mediated by Organizational Readiness

METHODS

This study uses a conclusive design with a cross-sectional approach, where data is collected through multiple cross-sectional design. Respondents only filled out the questionnaire once, with the main target being employees in the food and beverage industry. The research variables include one independent variable (Digital Technology), three intervening variables (Supply Chain Capability, Digital Competence, Organizational Readiness), and one dependent variable (Operational Performance), which is measured using the Likert scale 1-5. Data was collected through questionnaires distributed online and tested using SPSS 26 to test the validity, reliability, and fit of the model.

The results of the validity and reliability test showed that all variables had a calculated value greater than the table and a Cronbach's Alpha value ≥ 0.6, which means that the data was valid and reliable. The Goodness of Fit test using chi-square showed that although there was a fit between the theoretical model and the observational data, the asymptomatic significance showed moderate empirical support for the hypothesis regarding the positive impact of Digital Technology on Operational Performance. These results suggest that the influence of Digital Technology may be influenced by contextual factors or other moderating variables, so further research is needed to understand the specific conditions that can optimize their impact.

RESULTS

Data Analysis and Discussion of Research Results

Table 1. Hypothesis Test on the Relationship between Digital Technology and Operational Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.731[a]	.534	.531	.2824

a. Predictors: (Constant), TD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.176	1	15.176	190.347	.000[b]
	Residual	13.235	166	.080		
	Total	28.411	167			

a. Dependent Variable: KOP

b. Predictors: (Constant), TD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.315	.216		6.085	.000
	TD	.698	.051	.731	13.797	.000

a. Dependent Variable: KOP

Source : SPSS Output

The results of regression analysis show that Digital Technology (TD) has a significant impact on Operational Performance (KOP). This is evidenced by an R-squared value of 0.534, which shows that 53.4% of the variability in KOP can be explained by TD. Almost the same Adjusted R-squared value of 0.531 indicates that the model is stable and the results are reliable. In addition, an F-test value of 190.347 with a significance level of $p < 0.001$ confirms that this regression model is significant overall, indicating that TD is a good predictor for KOP. These findings are in line with the view that digitalization increases efficiency and effectiveness through the use of computer and internet technologies, as well as technologies such as AI, IoT, BDA, and cloud computing as key drivers in the integration and automation of business operations (Ivanov et al., 2019; Reddy & Reinartz, 2017). The implication of these results is that the application of Digital Technology in company operations can significantly improve performance. A regression coefficient of 0.698 with a t-value of 13.797 and a $p < 0.001$ reinforces these findings, suggesting that an increase of one unit in TD will increase the KOP by 0.698 units. These results support the theory that the adoption of digital technology is able to improve operational efficiency and effectiveness. Digital integration in the supply chain improves efficiency and provides predictive capabilities that enable companies to better plan and anticipate risks (Christopher & Ryals, 2014). In addition, technologies such as big data analytics in SCM not only optimize operations but also improve customer satisfaction and the company's competitiveness in the global market (Kache & Seuring, 2017). Holistic and integrative performance measurement can improve an organization's ability to respond quickly to environmental changes, and operational performance includes important aspects such as on-time delivery and cost reduction, all of which can be improved with the application of digital technologies (Alkhatib & Momani, 2023; Melnyk et al., 2014).

Table 2. Hypothesis Test of the Relationship between Digital Technology and Supply Chain Capabilities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720[a]	.518	.515	.3154

a. Predictors: (Constant), TD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.756	1	17.756	178.500	.000[b]
	Residual	16.512	166	.099		
	Total	34.268	167			

a. Dependent Variable: KRP

b. Predictors: (Constant), TD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.051	.241		4.356	.000
	TD	.755	.057	.720	13.360	.000

a. Dependent Variable: KRP

Source : SPSS Output

Based on the results of the data analysis presented, the hypothesis that Digital Technology (TD) has a positive impact on Supply Chain Capability (KRP) has strong support. An R Square value of 0.518 indicates that 51.8% of the variation in KRP can be explained by TD, which confirms the important role of digitalization in improving the efficiency and effectiveness of the supply chain as proposed by Reddy & Reinartz (2017) A strong correlation (R = 0.720) between TD and KRP supports the argument of Ivanov et al. (2019) that technologies such as AI, IoT, and big data analytics drive connectivity and integration in business operations. A high F value (178,500) with a significance level of 0.000 ($p < 0.05$) reinforces Christopher & Ryals (2014) finding that digital integration not only improves efficiency but also the predictive ability of supply chains. The results of the data indicate that this regression model is very statistically significant. An Adjusted R Square value (0.515) that is almost the same as the R Square indicates that the model is quite stable and can most likely be generalized to a wider population. The implication of this analysis on the theory is that the increased use of Digital Technologies in the supply chain has great potential to improve Supply Chain Capabilities. This supports the theory that digitalization can improve efficiency, visibility, and responsiveness in supply chain management. This is also in line with Kache & Seuring (2017) view of the role of digital technology in optimizing operations and creating added value. However, 48.2% of the variation in KRP that was not explained by the model reminded of the importance of other factors such as supply chain agility (Dubey et al., 2019) and supply chain resilience (Ivanov et al., 2016). These findings confirm that although the implementation of Digital Technologies is very important, a holistic approach in the development of supply chain capabilities is still needed, in line with the long-term digital transformation concept put forward by Dąbrowska et al. (2022) to optimize more flexible and responsive Supply Chain Capabilities.

Table 3. Hypothesis Test on the Relationship between Digital Technology and Digital Competence

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763[a]	.582	.579	.3188

a. Predictors: (Constant), TD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.475	1	23.475	231.019	.000[b]
	Residual	16.868	166	.102		
	Total	40.343	167			

a. Dependent Variable: KD

b. Predictors: (Constant), TD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.541	.244		2.217	.028
	TD	.868	.057	.763	15.199	.000

a. Dependent Variable: KD

Source : SPSS Output

The test results provide strong support for the hypothesis that Digital Technology (TD) has a significant positive impact on Digital Competency (KD). An R value of 0.763 indicates a strong positive correlation between the two variables. An R Square of 0.582 indicates that 58.2% of the variation in KD can be explained by TD, signaling a substantial influence. This regression model is statistically significant, evidenced by a high F value (231.019) and a p-value of 0.000 ($p < 0.05$). Positive and significant TD regression coefficients (B = 0.868, Beta = 0.763) (t = 15.199, p = 0.000) confirm that the increase in TD is consistently related to the increase in KD.

These findings have important implications for the theory and practice of digital competency development in organizations. These results support the argument that digital technology investment and implementation not only improves technological infrastructure, but also directly contributes to the improvement of the digital competencies of employees and organizations. This is in line with the concept of organizational learning and dynamic capability theory, where exposure to new technologies encourages the development of skills and knowledge. Increasing digital competence as a result of the implementation of digital technology is in line with the definition of digital competence put forward by Łukasiewicz (2020), which states that digital competence refers to a set of knowledge, skills, and attitudes that have a positive impact on the effective use of digital technology. Periáñez-Cañadillas et al. (2019) add that an individual's personal factors in relation to their digital knowledge influence employees' acceptance of digital learning systems and their adaptation to new tools in the digital field. However, it should be noted that 41.8% of the variation in KD is not explained by this model, suggesting the role of other factors such as formal training, organizational culture, or individual characteristics in the formation of digital competencies. As found by Borbely & Némethi-Takács (2023), there are demographic factors that affect digital competencies such as age, gender, and education that show that gender differences in digital skills are still significant and are likely to continue across different levels of society. Therefore, while digital technologies are proving to be crucial in improving digital competencies, a holistic approach that considers various aspects of competency development is still needed to maximize an organization's digital capabilities. As highlighted by Khan & Vuopala (2019), digital competencies are defined as a set of abilities to apply technology to effectively enrich our daily lives, which includes more than just a technical understanding of technology.

Table 4. Hypothesis Test of the Relationship between Digital Technology and Organizational Readiness

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695[a]	.483	.480	.3136

a. Predictors: (Constant), TD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.273	1	15.273	155.348	.000[b]
	Residual	16.321	166	.098		
	Total	31.594	167			

a. Dependent Variable: KOG

b. Predictors: (Constant), TD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.253	.240		5.222	.000
	TD	.700	.056	.695	12.464	.000

a. Dependent Variable: KOG

The results of statistical analysis show the hypothesis that Digital Technology (TD) has a significant positive impact on Organizational Readiness (KOG). An R value of 0.695 indicates a strong positive correlation between the two variables. An R Square of 0.483 indicates that 48.3% of the variation in KOG can be explained by TD, signaling a substantial influence. This regression model is statistically significant, as evidenced by a high F-value (155,348) and a p-value of 0.000 (p-< 0.05). Positive and significant TD regression coefficients (B = 0.700, Beta = 0.695) (t = 12.464, p = 0.000) confirm that an increase in TD is consistently associated with an increase in KOG. A relatively low standard error (0.3136) indicates a good level of precision in the model's estimation.

This explains important implications for the theory and practice of developing organizational readiness in the digital era. These results support the theory of Ivanov et al. (2019), these findings confirm that digital technologies such as AI, IoT, and big data analytics drive connectivity and integration in business operations, which are critical components of organizational readiness. This is consistent with the view of Jun et al. (2022) that organizational readiness includes aspects of technology, human resources, and organizational culture that support digital change. This research also reinforces the argument from Teece (2018) that an organization's technological readiness involves the ability to integrate and mobilize existing resources to create innovative new business processes. The results of this study also support the view of Bharadwaj et al. (2013) about the importance of solid technological infrastructure in improving organizational readiness. Westerman et al. (2015) also stated that technologically ready organizations can respond to changing markets and customer needs more quickly and effectively, showing how digital technology can strengthen organizational readiness through increased responsiveness and adaptability.

Table 5. Hypothesis Test of the Relationship between Supply Chain Capability and Operational Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.683[a]	.466	.463	.3023

a. Predictors: (Constant), KRP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.237	1	13.237	144.813	.000[b]
	Residual	15.174	166	.091		
	Total	28.411	167			

a. Dependent Variable: KOP

b. Predictors: (Constant), KRP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.633	.221		7.384	.000
	KRP	.622	.052	.683	12.034	.000

a. Dependent Variable: KOP

Source : SPSS Output

The results of the statistical analysis show a strong relationship for the hypothesis that Supply Chain Capability (KRP) has a significant positive impact on Operational Performance (KOP). An R value of 0.683 shows a strong positive correlation between the two variables. An R Square of 0.466 indicates that 46.6% of the variation in KOP can be explained by KRP, indicating a substantial influence. This regression model is statistically significant, evidenced by a high F-value (144.813) and a p-value of 0.000 (p-< 0.05). Positive and significant KRP regression coefficients (B = 0.622, Beta = 0.683) (t = 12.034, p = 0.000) confirm that the increase in KRP is consistently related to the increase in KOP. A relatively low error standard (0.3023) indicates a good level of precision in the model's estimation. This research is in line with the view of Blome et al. (2013) that strong supply chain capabilities allow companies to increase speed, flexibility, and responsiveness, which in turn contributes to improved operational performance. The results of this study reinforce the argument of Dubey et al. (2019) about the importance of supply chain agility in adapting quickly to environmental changes, which is reflected in the positive relationship between KRP and KOP. In addition, the views of Chavez et al. (2017) and Büyüközkan & Göçer (2018) state that the use of digital technology in the supply chain can improve operational performance through process automation and increased data accuracy. Malik et al. (2016) also explained that analytical capabilities in the supply chain play an important role in better and timely decision-making, which affects the improvement of operational performance. This study also supports the idea of Gunasekaran et al. (2017) and Melnyk et al., (2014) that effective and holistic measurement of operational performance can improve an organization's ability to respond quickly to environmental changes, which is in line with the definition of operational performance put forward by Alkhatib & Momani, (2023). Thus, these findings not only strengthen the existing theory but also provide a strong empirical foundation for the development of strategies to improve operational performance through strengthening supply chain capabilities.

Table 6. Hypothesis Test on the Relationship between Digital Competence and Operational Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668[a]	.446	.443	.3078

a. Predictors: (Constant), KD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.680	1	12.680	133.797	.000[b]
	Residual	15.731	166	.095		
	Total	28.411	167			

a. Dependent Variable: KOP

b. Predictors: (Constant), KD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.909	.206		9.253	.000
	KD	.561	.048	.668	11.567	.000

a. Dependent Variable: KOP

Source : SPSS Output

The results of statistical analysis provide strong support for the hypothesis that Digital Competency (KD) has a significant positive impact on Operational Performance (KOP). As shown in table 18, the R value of 0.668 shows a strong positive correlation between the two variables. An R Square of 0.446 indicates that 44.6% of the variation in KOP can be explained by KD, indicating a substantial influence. This regression model is statistically significant, evidenced by a high F-value (133,797) and a p-value of 0.000 (p-< 0.05). Positive and significant KD regression coefficients (B = 0.561, Beta = 0.668) (t = 11.567, p = 0.000) confirm that the increase in KD is consistently related to the increase in KOP. A relatively low standard error (0.3078) indicates a good level of precision in the model's estimation. These findings are in line with Lukasiewicz's view, (2019) that digital competencies have a positive impact on the effective use of digital technology, which in turn can improve operational performance.

The implications of the results of this analysis on the theory and practice of operational management are very significant. First, these findings reinforce the argument of Cañadillas, Charterina, & García, (2019) that the individual's personal factors in relation to his or her digital knowledge influence their adaptation to new tools in the digital field, which is reflected in the positive relationship between KD and KOP. Second, these results support the statement of Khan & Vuopala, (2019) that digital competencies are a set of abilities to apply technology effectively, which in this context contributes to improved operational performance. Furthermore, these findings are in line with the view (Gunasekaran et al., 2016) that effective measurement of operational performance allows organizations to identify areas that need improvement, which in this case can be facilitated by strong digital competence. Finally, these results confirm the definition of operational performance put forward by Alkhatib & Momani, (2023), which includes the ability of organizations to manage operational objectives such as on-time delivery and cycle time reduction, which can be improved through the application of digital competencies. Thus, these findings not only strengthen the existing theory but also provide a strong empirical foundation for the development of operational performance improvement strategies through strengthening the digital competencies of employees and organizations.

Table 7. Hypothesis Test of the Relationship between Organizational Readiness and Operational Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.745[a]	.555	.552	.2761

a. Predictors: (Constant), KOG

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.758	1	15.758	206.747	.000[b]
	Residual	12.653	166	.076		
	Total	28.411	167			

a. Dependent Variable: KOP

b. Predictors: (Constant), KOG

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.294	.209		6.200	.000
	KOG	.706	.049	.745	14.379	.000

a. Dependent Variable: KOP

Source : SPSS Output

The results of the statistical analysis provide strong support for the hypothesis that Organizational Readiness (KOG) has a significant positive impact on Operational Performance (KOP). An R value of 0.745 indicates a strong positive correlation between the two variables. An R Square of 0.555 indicates that 55.5% of the variation in KOP can be explained by KOG, signaling a substantial influence. This regression model is statistically significant, as evidenced by a high F value (206,747) and a p-value of 0.000 ($p < 0.05$). The positive and significant regression coefficients of KOG (B = 0.706, Beta = 0.745) (t = 14.379, p = 0.000) confirm that the increase in KOG is consistently related to the increase in KOP. The relatively low standard error (0.2761) indicates a good level of precision in the model's estimation.

The implications of the results of this analysis on the theory and practice of organizational management are very significant. These findings reinforce the argument (Jun et al., 2021) that organizational readiness in facing digitalization includes aspects of technology, human resources, and organizational culture that support digital change, which is reflected in the positive relationship between KOG and KOP. In line with the view (Teece, 2018), these results show that an organization's ability to integrate and mobilize resources to create innovative new business processes contributes to improved operational performance. Further, these findings support the statement (Bharadwaj et al., 2014) about the importance of a solid technological infrastructure, including reliable information systems and appropriate hardware, in improving organizational readiness and, in turn, operational performance. Finally, these results confirm the view (Westerman et al., 2014) that technologically ready organizations can respond to market changes and customer needs more quickly and effectively, which is reflected in improved operational performance. Thus, these findings not only strengthen existing theories but also provide a strong empirical foundation for the development of operational performance improvement strategies through strengthening organizational readiness in adopting and implementing new technologies.

Table 8. Hypothesis Test of the Relationship between Digital Technology and Operational Performance Mediated by Supply Chain Capabilities

Correlations

		TD	KRP	KOP
TD	Pearson Correlation	1	.720**	.731**
	Sig. (2-tailed)		.000	.000
	N	168	168	168
KRP	Pearson Correlation	.720**	1	.683**
	Sig. (2-tailed)	.000		.000
	N	168	168	168
KOP	Pearson Correlation	.731**	.683**	1
	Sig. (2-tailed)	.000	.000	
	N	168	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source : SPSS Output

Correlation analysis provides strong support for the hypothesis that Digital Technology (TD) has a positive impact on Operational Performance (KOP) with the mediation of Supply Chain Capability (KRP). The results showed a significant positive correlation between all variables at the level of 0.01 (2-tailed). The correlation between TD and KRP of 0.720 shows a strong positive relationship, indicating that the increase in the implementation of digital technology is closely related to the improvement of supply chain capabilities. This is in line with the view (Ivanov et al., 2018) that digital technologies such as AI, IoT, and big data analytics are driving connectivity and integration in supply chain operations. The correlation between KRP and KOP of 0.683 also shows a strong positive relationship, confirming that improving supply chain capabilities contributes significantly to improving operational performance. These findings support the argument (Blome et al., 2014) that strong supply chain capabilities allow companies to increase speed, flexibility, and responsiveness, which in turn improves operational performance. The direct correlation between TD and KOP of 0.731 shows the strongest positive relationship between the three variables. This indicates that digital technologies have a substantial direct impact on operational performance, in addition to their effect through improved supply chain capabilities. These findings reinforce the argument (Reddy & Reinartz, 2017) that digitalization creates economic value through operational efficiency and effectiveness. This correlation pattern suggests the possibility of a partial mediation effect, where KRP mediates part of the relationship between TD and KOP, but TD also has a significant direct effect on KOP. This is in line with the view (Kache & Seuring, 2017) that the application of digital technology in supply chain management not only improves supply chain capabilities, but also directly optimizes operations and increases the competitiveness of companies.

The implications of these findings are very significant for management practices. Organizations need to focus their efforts on implementing digital technologies that not only improve their supply chain capabilities, but also directly impact on improving operational performance. A holistic strategy, which considers both the development of supply chain capabilities and the direct optimization of operational processes through digital technology, seems to provide the best results in improving overall operational performance.

Table 9. Hypothesis Test of the Relationship between Digital Technology and Operational Performance Mediated by Digital Competence

Correlations

		TD	KD	KOP
TD	Pearson Correlation	1	.763**	.731**
	Sig. (2-tailed)		.000	.000
	N	168	168	168
KD	Pearson Correlation	.763**	1	.668**
	Sig. (2-tailed)	.000		.000
	N	168	168	168
KOP	Pearson Correlation	.731**	.668**	1
	Sig. (2-tailed)	.000	.000	
	N	168	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source : SPSS Output

Correlation analysis shows strong support for the hypothesis that Digital Technology (TD) has a positive impact on Operational Performance (KOP) with the mediation of Digital Competency (KD). The results showed a significant positive correlation between all variables at the level of 0.01 (2-tailed). The correlation between TD and KD of 0.763 shows a strong positive relationship, indicating that the increase in the implementation of digital technology is closely related to the improvement of digital competence. This is in accordance with the theory from Lukasiewicz, (2019) that digital competence has a positive impact on the effective use of digital technology.

The correlation between KD and KOP of 0.668 also shows a strong positive relationship, confirming that the improvement of digital competence contributes significantly to the improvement of operational performance. These findings support the argument (Khan & Vuopala, 2019) that digital competencies are a set of abilities to effectively implement technology, which in this context contributes to improved operational performance.

The direct correlation between TD and KOP of 0.731 shows the strongest positive relationship between the three variables. This indicates that digital technology has a substantial direct impact on operational performance, in addition to its effect through increased digital competence. These findings reinforce the argument (Reddy & Reinartz, 2017) that digitalization creates economic value through operational efficiency and effectiveness.

This correlation pattern suggests the possibility of a partial mediation effect, where KD mediates part of the relationship between TD and KOP, but TD also has a significant direct effect on KOP. This is in line with the view (Cañadillas, Charterina, & García, 2019) that the individual's personal factors in relation to his or her digital knowledge influence their adaptation to new tools in the digital field, which in turn can improve operational performance.

The implications of these findings are very significant for management practices. Organizations need to focus their efforts on the implementation of digital technologies that not only improve the digital competence of their employees, but also directly impact on improving operational performance. A holistic strategy, which considers both the development of employees' digital competencies and the direct optimization of operational processes through digital technology, seems to provide the best results in improving overall operational performance.

Furthermore, these findings emphasize the importance of investing in employee digital competency training and development, as argued by (Borbely & Takacs, 2023), while still paying attention to the implementation of digital technologies that directly impact operational processes. This integrated approach can maximize the benefits of digital transformation in improving organizational operational performance.

Table 10. Hypothesis Test of the Relationship between Digital Technology and Operational Performance Mediated by Organizational Readiness

Correlations

		TD	KOG	KOP
TD	Pearson Correlation	1	.695**	.731**
	Sig. (2-tailed)		.000	.000
	N	168	168	168
KOG	Pearson Correlation	.695**	1	.745**
	Sig. (2-tailed)	.000		.000
	N	168	168	168
KOP	Pearson Correlation	.731**	.745**	1
	Sig. (2-tailed)	.000	.000	
	N	168	168	168

**. Correlation is significant at the 0.01 level (2-tailed).

Source : SPSS Output

Correlation analysis provides strong support for the hypothesis that Digital Technology (TD) has a positive impact on Operational Performance (KOP) with the mediation of Organizational Readiness (KOG). The results showed a significant positive correlation between all variables at the level of 0.01 (2-tailed). The correlation between TD and KOG of 0.695 shows a strong positive relationship, indicating that the increase in the implementation of digital technology is closely related to the improvement of organizational readiness. This is in line with the view (Jun et al., 2021) that organizational readiness in facing digitalization includes aspects of technology, human resources, and organizational culture that support digital change. The correlation between KOG and KOP of 0.745 indicates a very strong positive relationship, confirming that the improvement of organizational readiness contributes significantly to the improvement of operational performance. These findings support the argument (Teece, 2018) that an organization's technological readiness involves the ability to integrate and mobilize resources to create innovative new business processes, which in turn improves operational performance.

The direct correlation between TD and KOP of 0.731 also shows a strong positive relationship. This indicates that digital technologies have a substantial direct impact on operational performance, in addition to their effect through increased organizational readiness. These findings reinforce the argument (Reddy & Reinartz, 2017) that digitalization creates economic value through operational efficiency and effectiveness.

This correlation pattern suggests the possibility of a partial mediation effect, where KOG mediates part of the relationship between TD and KOP, but TD also has a significant direct effect on KOP. This is in line with the view (Westerman et al., 2014) that technologically ready organizations can respond to market changes and customer needs more quickly and effectively, which is reflected in improved operational performance.

The implications of these findings are very significant for management practices. Organizations need to focus their efforts on implementing digital technologies that not only improve their organizational readiness, but also directly impact on improving operational performance. A holistic strategy, which considers both the development of organizational readiness and the direct optimization of operational processes through digital technology, seems to provide the best results in improving overall operational performance.

Furthermore, these findings affirm the importance of investment in technological infrastructure, human resource development, and the formation of an organizational culture that supports innovation, as argued by (Bharadwaj et al., 2014). This integrated approach can maximize the benefits of digital transformation in improving organizational readiness and ultimately, organizational operational performance.

CONCLUSION

This study finds that Digital Technology (TD) significantly enhances Operational Performance (KOP) both directly and through the mediation of Supply Chain Capability (KRP), Digital Competency (KD), and Organizational Readiness (KOG), highlighting the importance of integrating technology in business processes and fostering an innovative organizational culture. The managerial implications suggest a holistic approach to digital transformation, including developing supply chain capabilities, employee competencies, and organizational readiness, while adopting technologies like IoT, big data analytics, and AI to optimize operations. Despite its contributions, the study's limitations, such as reliance on quantitative data from a cross-sectional design and a focus on FMCG companies in specific regions, suggest that future research should use longitudinal designs and expand to diverse industries and organizational sizes to better understand these relationships over time.

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