

The Role of Company Sector on the Impact of Digital Orientation Strategy and Digital Capabilities Mediated by Company Readiness on Digital Innovation

Benny Julius Joesoep & Dadan Umar Daihani

Economic Doctoral Program of Trisakti University of Indonesia

Email: dadan@trisakti.ac.id

Abstract

This study aims to analyze the effects of Strategic Digital Orientation and Dynamic Digital Capabilities on Digital Innovation, mediated by Company Readiness, in both service and non-service companies. This research employs a quantitative research method with descriptive and confirmatory characteristics. This study uses Structural Equation Modeling (SEM) with PLS-SEM multigroup analysis (PLS-MGA) to process data. This study's findings reveal a positive and significant influence of Strategic Digital Orientation and Digital Capabilities on both Company Readiness, and Digital Innovation. Contrary to expectations, Company Readiness did not significantly impact Digital Innovation, nor did it significantly mediate the relationship between Strategic Digital Orientation and Digital Innovation or between Digital Capabilities and Digital Innovation. Interestingly, the research uncovered a significant difference between service companies and non-service companies regarding the influence of Digital Capabilities on Digital Innovation, underscoring the sector-specific dynamics of digital innovation strategies. The influence of Digital Capabilities on Digital Innovation was found to be stronger in service companies, highlighting the critical role of digital capabilities in enhancing innovation within sectors directly interfacing with customers and reliant on digital platforms for service delivery. This study presents certain limitations. Firstly, it does not incorporate external variables, variations in the scale, and restricts its sample solely to Indonesian Financial Directors Association members.

Keywords: Company Sector, Strategic Digital Orientation, Digital Capability, Digital Innovation, Company Readiness

1. Introduction

The digital era has dramatically transformed the competitive landscape, necessitating digital transformation across all business sectors to enhance value, performance, and competitiveness (Krauss et al., 2021). This transformation is critical for manufacturing sectors to navigate operational challenges and secure a competitive edge (Li & Wang, 2021), and it demands that business leaders harness digital innovation to benefit their customers (Vidas-Bubanja, 2017). Although digital transformation offers both opportunities and challenges, its net effect is typically positive for organizations (Hadiono, 2020).

Innovation differentiates businesses through product and service advancements. Product innovation enhances goods' aesthetics and functionality, while service innovation, intangible, focuses on adding value and enhancing customer experiences, ensuring relevance and competitiveness with a customer-centric approach.

The foundation of digital transformation lies in an organization's digital capabilities—comprising skills, mindset, and culture—preparing it to master digital technologies (Marinkovic & Kalinic, 2017). Such capabilities, including human resources, innovation, technology alliances, and R&D, are vital for organizational flexibility and adaptability in a rapidly changing environment (Annarelli et al., 2021; Arachchige, 2021; Mohamud & Sarpong, 2016).

The Covid-19 pandemic between 2019-2021 underscored the critical need for digital innovation, as restrictions necessitated a shift in consumer behavior from traditional to online transactions, thus highlighting the importance of strategic digital orientation for organizational performance. Strategic digital orientation encompasses leveraging digital technology opportunities through supportive attitudes and innovative behaviors (Quinton et al., 2018; Kindermann et al., 2021).

This study examines digital innovation in Indonesian industries, focusing on companies led by members of the Indonesian Financial Directors Association (CFO Club Indonesia), assessing adaptation amidst transformation and varying capabilities. It uniquely contributes to understanding sector-specific dynamics in digital innovation, comparing service and non-service sectors, filling a research gap.

2. Literature Review

The exploration of digital innovation within the academic realm, underpinned by resource-based theory, highlights a consensus: organizations with a pronounced emphasis on technological advancement tend to exhibit superior innovation rates. This phenomenon is attributed to their commitment to assimilating cutting-edge methodologies in product development. Extant literature, including seminal works by Zhen et al. (2021) and Khin & Ho (2019), has paved the way for understanding digital innovation. Yet, this study seeks to expand the discourse by integrating additional variables—Strategic Digital Orientation, Digital Capability, and Company's Digital Readiness—and by delineating the analysis across different sectors (service and non-service), thereby proposing a more comprehensive conceptual framework.

This research endeavors to construct a model that encapsulates the multifaceted variables influencing digital innovation. It builds upon existing models advocated by Zhen et al. (2021), Khin & Ho (2019), and Jun et al. (2021), which position company readiness as a pivotal mediating factor in the digital innovation process. A novel contribution of this study is the emphasis on Strategic Digital Orientation, conceptualized as a deliberate organizational posture to harness the potential offered by digital technologies (Quinton et al., 2018).

Lokuge et al. (2019) suggest that the efficacy of digital innovation initiatives is intrinsically linked to an organization's readiness for such undertakings. While a higher level of readiness is posited to correlate with successful innovation implementation, it is not guaranteed that mere preparedness will suffice for optimal innovation performance. It is posited that while all organizations may exhibit varying degrees of readiness across different dimensions, only those

orientation significantly contributes to a firm's innovation capacity. This is largely due to an unwavering commitment towards embracing state-of-the-art technologies for product development, as articulated in the research conducted by Khin & Ho (2019). This theory underlines the premise that digital technology, as a cornerstone of the digital innovation process, necessitates a profound commitment to technological evolution to foster innovative solutions that resonate with current business trends. The implication here is that a firm's strategic digital orientation opens avenues for substantial digital innovation opportunities, leading to the formulation of the hypothesis:

H1: There is a positive effect of Strategic Digital Orientation on Digital Innovation

Effect of Digital Capabilities on Digital Innovation. Digital transformation, as Westerman et al. (2011) note, hinges on the development and application of digital capabilities. These capabilities, ranging from technical skills to analytical competencies, are critical in redefining customer experiences and operational processes. The scarcity of such capabilities is seen as a barrier to effective digital transformation, indicating a pressing need for organizations to develop a broad spectrum of digital skills. This necessity underscores the potential of digital capabilities to drive innovation by enabling firms to leverage data more effectively, engage with customers through digital channels, and streamline operations. The evidence pointing to the positive impact of technological capabilities on innovation (Zawislak et al., 2013) further supports the premise that enhancing digital capabilities is foundational to fostering a culture of innovation.

H2: There is a positive influence of Digital Capabilities on Digital Innovation

Effect of Company Readiness on Digital Innovation. The concept of company readiness is pivotal for digital innovation success, as Jabbour et al. (2018) elucidate. This readiness transcends mere technological preparedness, encompassing an organizational culture that embraces change, a workforce skilled in digital technologies, and an infrastructure that supports digital initiatives. Companies with high levels of readiness are not just prepared to adopt new technologies; they are poised to integrate these technologies into their core operations and strategies effectively. This integration is crucial for unlocking digital innovation, suggesting that readiness is a multifaceted construct that plays a central role in an organization's ability to innovate in the digital age.

H3: There is a positive influence on company readiness for digital innovation

The Effect of Strategic Digital Orientation on Company Readiness. A strategic digital orientation fosters company readiness by aligning digital goals with broader organizational strategies. This alignment ensures that firms are not just technologically equipped but also culturally and structurally prepared to undertake digital transformation initiatives. As indicated by findings from Khin & Ho (2019) and Panda & Rath (2021), a strong digital orientation enhances a firm's ability to respond to digital challenges and opportunities promptly. This enhanced readiness is critical for firms aiming to leverage digital technologies for competitive advantage, underscoring the symbiotic relationship between strategic digital orientation and

company readiness for digital innovation.

H4: There is a positive effect of Strategic Digital Orientation on company readiness

Effect of Digital Capabilities on Company Readiness. Digital capabilities, encompassing a broad range of competencies from technical know-how to digital literacy, are essential for a company's readiness to innovate. These capabilities enable firms to adapt to the rapid pace of digital change, facilitating the development and implementation of innovative digital solutions. The dynamic capabilities theory, as discussed by Zhang et al. (2014), posits that the ability to rapidly reconfigure resources and capabilities is critical for sustaining competitive advantage in digital markets. Organizations with pronounced digital capabilities are posited to have a higher propensity for digital innovation, which in turn influences their readiness to embrace and utilize new technologies. This is corroborated by research indicating that digital capabilities are a substantial predictor of digital innovation (Levallet & Chan, 2022; Gupta et al., 2019; Junior et al., 2017). Therefore, investing in digital capabilities not only prepares a company for the digital future but also enhances its capacity to innovate by ensuring that it can efficiently leverage new technologies as they emerge.

H5: There is a positive effect of Digital Capability on company Readiness

The Influence of Strategic Digital Orientation on Digital Innovation Mediated by Firm Readiness. The intricate role of firm readiness as a mediator in the relationship between Strategic Digital Orientation and Digital Innovation is scrutinized within the context of a rapidly changing business landscape. Magni et al. (2018) and Jun et al. (2021) argue that the full benefits of strategic digital orientation are realized only when bolstered by strong improvisational capabilities and organizational readiness, which are indispensable for fostering innovation performance. Firm readiness created by improvisational abilities is essential in building innovation performance (Lokuge et al.). The synthesis of strategic orientation with firm readiness underscores the iterative process between planning and execution in the digital innovation landscape.

H6: There is an effect of strategic digital orientation on digital innovation, which is mediated by company readiness

Effect of Digital Capabilities on Digital Innovation Mediated by Enterprise Readiness. Additionally, the mediating effect of company readiness between Digital Capabilities and Digital Innovation is examined, with Zhen et al. (2021) positing that readiness serves as a crucial bridge enabling the translation of digital capabilities into tangible innovations. The company's readiness created by improvisational capabilities is essential in building innovation performance (Lokuge, et al., 2019). The mediating effect of readiness, therefore, underscores the importance of organizational elements in harnessing digital capabilities for innovation, reinforcing the idea that technical capabilities alone are insufficient without the organizational agility and willingness to innovate.

H7: There is an Effect of Digital Capability on Digital Innovation which is mediated by company Readiness

The Role Of Company Sector On Digital Innovation. The differentiation of digital innovation impacts between service and non-service sectors captures the nuanced ways in which digital technologies permeate various industries. As digital tools and platforms become increasingly integral to delivering value, the sector in which a company operates influences how these technologies are deployed and the innovation outcomes they yield. Svensson and Taghavianfar (2015) and Yoo et al. (2012) discuss the transformative potential of digital technologies across sectors, suggesting that the strategic value of digital innovation may be more pronounced in service industries, where customer interaction and service delivery can be significantly enhanced through digital means. This sectoral perspective is crucial for understanding the broader implications of digital strategies and capabilities, highlighting the need for tailored approaches to digital innovation that reflect the unique characteristics and demands of different industry sectors.

H8: There is a difference between service sector and non service sector on the effect of Digital Capability, and Strategic Digital Orientation on Digital Innovation which is mediated by company Readiness

This hypothesis development offers an in-depth look at the strategic factors driving digital innovation, focusing on Company Readiness as a mediator and the impact of sector differences. It seeks to elucidate how strategic orientations and capabilities foster digital innovation across various contexts, aligning with resource-based theory principles. This approach also paves the way for further exploration into the roles of digital orientation and capabilities in digital transformation.

3. Research Method

Research type. This research is quantitative, and based on its objectives, it is a type of explanatory research, namely a kind of research aimed at testing the influence of hypothesized variables (Casula et al., 2021). This study will test the hypothesis of the effect of the independent variable Strategic Digital Orientation and Digital Capability on the dependent variable, namely Digital Innovation and Company Readiness.

Population and Sample. This study targets Chief Financial Officers (CFOs) within Indonesia's CFO Club, which comprises finance leaders from diverse companies overseeing financial operations and digital innovation. As of February 8, 2023, the club had 334 registered members. After data verification, 23 were found inactive or abroad, reducing the population to 311. Given its specific focus and size, the research adopts a total population sampling method to encompass the entire group of CFOs, ensuring a comprehensive analysis of their insights on financial strategies supporting digital innovation. This methodological choice facilitates an in-depth understanding of the financial leadership's impact on digital innovation across Indonesian firms.

Research Instrument. Employing survey and questionnaire methods as the primary data collection instruments, this study successfully gathered pertinent information from respondents, thereby securing the requisite data to address the research questions. The measurements for the variables under investigation were derived from an array of preceding studies, details of which

are outlined in the following Table:

Variable	Indicator
Digital Innovation (Khin & Ho, 2018)	1. The quality of our digital solutions is superior compared to our competitors' 2. The features of our digital solutions are superior compared to our competitors' 3. The applications of our digital solutions are totally different from our competitors' 4. Our digital solutions are different from our competitors' in terms of product platform 5. Our new digital solutions are minor improvements of existing products 6. Some of our digital solutions are new to the market at the time of launching
Strategic Digital Orientation (Szukits, 2022)	7. Corporate management understands the digital challenges and opportunities facing the company 8. The leadership of our organization has clearly defined the digital business strategy of the organization 9. We have allocated adequate financial resources to plan and implement the digital business transformation 10. Our organization has the technological knowledge and skills to transform the digital business 11. We can quickly change our digital solutions to meet business challenges 12. We are willing to take risks compared to our current practice by introducing innovative digital solutions 13. We track industry-leading digital solutions
Dynamic Digital Capabilities (Zhou & Wu, 2010)	14. Our organization is quicker than rivals at collecting crucial technology knowledge. 15. Our business is more adept than others at spotting emerging technical prospects. 16. Compared to competitors, our company is more responsive to technological advances. 17. Compared to competitors, our company is quicker to grasp the most recent technologies. 18. Compared to rivals, our business consistently creates a series of innovations.
Company	19. We understand that specific digital changes may improve outcomes.

Variable	Indicator
Readiness (Jun et al., 2021)	20. Most staff members are willing to try new digital ideas and it is easy to change procedures to meet new conditions. 21. Employees ask questions and express their concerns whenever there is a change as a result of the company's digital innovations. 22. When changes as a result of digital innovation are required, management provides a clear plan regarding the steps to implement them. 23. Employees are encouraged to discuss and explore techniques or best practices in accepting change as a result of digital innovation 24. Employees adapt quickly when they have to accommodate all possible changes that may occur as a result of digital innovation

This research uses partial regression analysis (Partial Least Square-Structural Equation Model (PLS-SEM)) to test hypotheses. Each hypothesis is analyzed using smartPLS 3.0 software to test the relationship between variables.

One approach to PLS is Multigroup Partial Least Square Analysis (MGA-PLS). MGA analysis is used when there are groups of data to determine whether there are significant differences in estimated parameters. Multigroup Analysis with Partial Least Square (MGA-PLS) is a PLS approach method used to see differences between two or more groups by first looking for relationships between latent variables (variables that cannot be measured directly) using Structural Equation Modeling - Partial Least Square (SEM-PLS).

4. Finding and Discussion

Data processing techniques using the SEM method based on Partial Least Square (PLS) require 2 stages to assess the Fit Model of a research model (Ghozali, 2019). These stages are as follows:

Outer Model Analysis. *Convergent* validity. An individual reflexive measure is said to be high if it correlates more than 0.70 with the construct being measured. However, according to Chin, 1998 (in Ghozali, 2019) for research in the initial stages of developing a measurement scale, a loading value of 0.5 to 0.6 is considered sufficient. In this research, a loading factor limit of 0.50 will be used.

International Conference of Organizational Innovation 2024

Proceedings

ICOI

2024

e-ISSN: 3064-6030
FMI, Vol 1
23-25 July 2024

Table 1. Outer Loadings (Measurement Model)

	Company Readiness	Digital Capabilities	Digital Innovation	Strategic Orientation	Digital
DC 1		0.892			
DC 2		0.875			
DC 3		0.920			
DC 4		0.892			
DC 5		0.768			
DI1			0.814		
DI2			0.837		
DI3			0.829		
DI4			0.757		
DI5			0.806		
DI6			0.680		
DR 1	0.953				
DR 2	0.694				
DR 3	0.972				
DR 4	0.986				
DR 5	0.985				
DR 6	0.975				
DS 1				0.952	
DS 2				0.950	
DS 3				0.967	
DS 4				0.970	
DS				0.940	

5				
DS 6				0.960
DS 7				0.958

The processing results using SmartPLS can be seen in Table 1. The outer model value or correlation between constructs and variables initially met convergent validity because all indicators had loading factor values above 0.50.

Indicator correlation analysis (Discriminant Validity). Discriminant validity is carried out to ensure that each concept of each latent variable is different from other variables. The model has good discriminant validity if each loading value for each indicator of a latent variable has the largest loading value compared to other loading values for other latent variables. The results of discriminant validity testing were obtained as follows:

Table 2. Discriminant Validity (Cross Loading)

	Company Readiness	Digital Capabilities	Digital Innovation	Strategic Orientation	Digital
DC 1	0.245	0.892	0.373	0.330	
DC 2	0.225	0.875	0.392	0.359	
DC 3	0.250	0.920	0.387	0.330	
DC 4	0.253	0.892	0.388	0.361	
DC 5	0.240	0.768	0.320	0.293	
DI1	0.155	0.358	0.814	0.371	
DI2	0.146	0.368	0.837	0.416	
DI3	0.152	0.305	0.829	0.379	
DI4	0.246	0.376	0.757	0.345	
DI5	0.212	0.295	0.806	0.364	
DI6	0.189	0.319	0.680	0.285	
DR 1	0.953	0.240	0.204	0.338	
DR 2	0.694	0.243	0.212	0.188	
DR 3	0.972	0.263	0.221	0.344	
DR	0.986	0.267	0.211	0.328	

	Company Readiness	Digital Capabilities	Digital Innovation	Strategic Orientation	Digital
4					
DR 5	0.985	0.269	0.225	0.342	
DR 6	0.975	0.276	0.224	0.327	
DS 1	0.359	0.359	0.447	0.952	
DS 2	0.293	0.342	0.441	0.950	
DS 3	0.324	0.389	0.428	0.967	
DS 4	0.317	0.365	0.440	0.970	
DS 5	0.332	0.379	0.416	0.940	
DS 6	0.312	0.382	0.461	0.960	
DS 7	0.320	0.362	0.439	0.958	

From Table 2. it can be seen that several loading factor values for each indicator of each latent variable still have the largest loading factor values compared to the loading values when connected to other latent variables. This means that each latent variable does not have good discriminant validity, where some latent variables still have measures that are highly correlated with other constructs. Evaluating Reliability and Average Variance Extracted (AVE). Validity and reliability criteria can also be seen from the reliability value of a construct and the Average Variance Extracted (AVE) value of each construct. A construct is said to have high reliability if the value is 0.70 and the AVE is above 0.50. In Table 3, the Composite Reliability and AVE values for all variables will be presented.

Table 3. Composite Reliability and Average Variance Extracted

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Company Readiness	0.968	0.976	0.976	0.871
Digital Capabilities	0.919	0.923	0.940	0.758
Digital Innovation	0.878	0.882	0.908	0.623
Strategic Orientation	0.985	0.985	0.987	0.915

Based on Table 3, it can be concluded that all constructs meet the reliable criteria. This is indicated by Cronbach's Alpha, rho_A, Composite Reliability values above 0.60 and AVE above 0.50 as recommended criteria.

Structural Model Testing (Inner Model). Inner model or structural model testing is carried out to see the relationship between constructs, significance values and R-square of the research model. The structural model was evaluated using R-square for the t-test dependent construct as well as the significance of the structural path parameter coefficients.

In assessing the model with PLS, start by looking at the R-square for each dependent latent variable. Table 4 is the result of R-square estimation using SmartPLS.

Table 4. R-Square Value

	R Square	R Square Adjusted
Company Readiness	0.140	0.133
Digital Innovation	0.286	0.278

In principle, this research uses 3 variables which are influenced by other variables, namely Digital Innovation (Y) which is influenced by Strategic Digital Orientation (X1), Digital Capabilities (X2), Company Readiness (Z). Company Readiness (Z) is influenced by Strategic Digital Orientation (X1), Digital Capabilities and (X2)

Table 4. shows that the R-square value for the Digital Innovation variable is 0.286. These results indicate that 28.6% of the Digital Innovation variable (Y) is influenced by Strategic Digital Orientation (X1), Digital Capabilities (X2), and Company Readiness (Z) simultaneously .

The R-square value for the Company Readiness variable (Z) was obtained at 0.140. These results show that 14.0% of the Company Readiness variable (Z) is influenced by Strategic Digital Orientation (X1), and Digital Capabilities (X2) simultaneously.

Testing the Partial Influence Hypothesis. The significance of the estimated parameters provides very useful information about the relationship between the research variables. The basis used in testing the hypothesis is the value contained in the output result for inner weight which can be seen in the following figure and table:

Table 5. Result For Inner Weights (Direct Effect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Company Readiness -> Digital Innovation	0.038	0.032	0.062	0.608	0.544
Digital Capabilities ->	0.174	0.175	0.068	2.545	0.011

Company Readiness					
Digital Capabilities -> Digital Innovation	0.289	0.292	0.063	4.556	0.000
Strategic Digital Orientation -> Company Readiness	0.270	0.271	0.071	3.826	0.000
Strategic Digital Orientation -> Digital Innovation	0.335	0.335	0.069	4.855	0.000

In employing the Partial Least Square (PLS) methodology, particularly the bootstrap testing approach, this study aims to mitigate the challenges presented by non-normality in the dataset. This analytical rigor facilitates a nuanced examination of the hypothesized relationships, yielding the following insights:

1. **The Role of Strategic Digital Orientation in Enhancing Digital Innovation:** The analysis demonstrates a robust positive association (path coefficient = 0.335, t-value = 4.855, $p < 0.05$), affirming Hypothesis 1. This result substantiates the pivotal role of Strategic Digital Orientation in fostering an environment conducive to digital innovation, suggesting that strategic alignment with digital technologies is integral to enhancing a firm's innovative capabilities.
2. **Digital Capabilities as a Catalyst for Digital Innovation:** This relationship is significantly positive (path coefficient = 0.289, t-value = 4.556, $p < 0.05$), supporting Hypothesis 2. The findings underscore the critical importance of Digital Capabilities, including technological proficiency, analytical acumen, and social media expertise, as essential drivers of digital innovation, enabling firms to effectively navigate and leverage the opportunities presented by digital transformation.
3. **Company Readiness and Its Influence on Digital Innovation:** Despite a positive direction, this relationship does not achieve statistical significance (path coefficient = 0.038, t-value = 0.608, $p > 0.05$), leading to the rejection of Hypothesis 3. This suggests that while organizational readiness is necessary, it alone may not suffice to guarantee successful outcomes in digital innovation.
4. **Impact of Strategic Digital Orientation on Company Readiness:** A significant positive effect is observed (path coefficient = 0.270, t-value = 3.826, $p < 0.05$), corroborating Hypothesis 4. This finding highlights the significance of cultivating a strategic mindset oriented towards digitalization, which is instrumental in preparing the organizational culture and operational frameworks for digital transformation.

5. Contribution of Digital Capabilities to Company Readiness: Evidenced by a substantial positive influence (path coefficient = 0.174, t-value = 2.545, $p < 0.05$), Hypothesis 5 is validated. This result supports the notion that the development of Digital Capabilities is critical in establishing a foundation that is both ready and capable of embracing and integrating digital innovations.

Table 6. Result For Indirect Effect

	Original Sample (O)	Sample (M)	Mean	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Capabilities -> Digital Innovation	0.007	0.005		0.012	0.546	0.585
Strategic Digital Orientation -> Digital Innovation	0.010	0.009		0.018	0.575	0.566

6. The Mediated Role of Company Readiness in the Relationship Between Strategic Digital Orientation and Digital Innovation: This analysis reveals an insignificant mediated effect (path coefficient = 0.007, t-value = 0.546, $p > 0.05$), resulting in the non-confirmation of Hypothesis 6. This indicates that the pathway from Strategic Digital Orientation to Digital Innovation, through the mediating role of Company Readiness, does not significantly contribute to enhancing digital innovation.

7. Digital Capabilities' Mediated Influence on Digital Innovation Through Company Readiness: Similarly, this relationship is found to be insignificant (path coefficient = 0.010, t-value = 0.575, $p > 0.05$), leading to the rejection of Hypothesis 7. It suggests that, while Digital Capabilities are crucial for fostering innovation, their effect does not significantly magnify through Company Readiness as a mediator.

8. In assessing Hypothesis 8, the study utilized Partial Least Square – Multi Group Analysis (PLS-MGA), dividing participants into two groups based on their association with either service or non-service sectors, further categorized by their exposure to CSI information. This division aimed to unearth any distinct effects digital capabilities might exert on digital innovation across these sectors. Partial Least Square – Multi Group Analysis (PLS-MGA) was carried out to determine the comparison coefficient and its significance (p-value). The PLS-MGA results can be seen in the following table:

Table 7. Multi Group Analysis (PLS-MGA) Result

	Path Coefficients	p-Value	
Company Readiness -> Digital Innovation	-0.071	0.621	Not significant
Digital Capabilities -> Company Readiness	-0.147	0.306	Not significant
Digital Capabilities -> Digital Innovation	0.292	0.025	Significant
Strategic Digital Orientation -> Company Readiness	0.053	0.704	Not significant
Strategic Digital Orientation -> Digital Innovation	0.024	0.848	Not significant

Notes :

GROUP_Sector(1.0) = Service Industry

GROUP_Sector(2.0) = Non-Service Industry

The PLS-MGA findings underscore a notable variance only in the relationship between Digital Capabilities and Digital Innovation, with a p-value < 0.05 indicating a significant difference between service and non-service companies. This divergence suggests that Digital Capabilities substantially impact Digital Innovation within service sectors compared to their non-service counterparts. The results for other relationships did not demonstrate significant differences, suggesting uniformity in the influence of Company Readiness and Strategic Digital Orientation across sectors. Thus, Hypothesis 8, which posited a sectorial distinction in the effect of Digital Capabilities and Strategic Digital Orientation on Digital Innovation, mediated by Company Readiness, finds partial support. The distinction underscores the unique influence of digital capabilities on innovation within the service sector, compared to the non-service sector.

This outcome can be attributed to the intrinsic characteristics of service industries, which inherently depend more on digital technologies for delivering customer value. Given the information-intensive and interactive nature of these sectors, advancements in digital capabilities can yield more direct and tangible benefits. This differential advantage manifests in improved service delivery, customer engagement, and operational efficiency, unlike in non-service sectors where the direct impact of digital capabilities on product innovation may be less immediate.

Supporting these findings, Bharadwaj et al. (2013) argue that information technology capabilities are vital for business process innovation, especially where technology-mediated interactions are prevalent. Nambisan (2017) complements this perspective, highlighting the crucial role of digital capabilities in driving service innovation. Together, these contributions provide a theoretical foundation for the observed sector-specific disparities, suggesting strategic prioritization of digital capabilities in service sectors to enhance innovation outcomes. This

nuanced understanding reaffirms the significance of contextual factors in digital innovation processes, suggesting a need for sector-specific strategies to optimally leverage digital capabilities for innovation.

5. Conclusion

In conclusion, the investigation undertaken in this study, employing structural equation modeling (SEM) to scrutinize the interplay between Strategic Digital Orientation, Digital Capabilities, and Company Readiness with Digital Innovation, yields several pivotal insights. Firstly, Strategic Digital Orientation is found to significantly and positively impact Digital Innovation, highlighting the critical importance of aligning organizational strategy with digital initiatives to foster innovation. Secondly, Digital Dynamic Capabilities also demonstrate a positive correlation with Digital Innovation, suggesting that the ability to adapt and evolve digital skills is essential for enhancing an organization's innovative capacity. Interestingly, Company Readiness, despite its importance, does not directly influence Digital Innovation. This suggests that readiness alone may not be sufficient to guarantee innovation success without strategic orientation and dynamic capabilities. Furthermore, Strategic Digital Orientation significantly benefits Company Readiness, indicating that a proactive digital strategy enhances organizational preparedness for digital transformation. The impact of Digital Dynamic Capability on Company Readiness is also positive and significant, emphasizing the necessity of building robust digital infrastructure and capabilities.

The study also reveals that the mediating role of Company Readiness in the relationship between Strategic Digital Orientation and Digital Innovation is not significant. This suggests that the direct influence of strategic orientation on innovation does not rely heavily on organizational readiness as a mediator. Similarly, Digital Dynamic Capabilities do not significantly affect Digital Innovation when mediated by Company Readiness, pointing towards the direct pathways through which dynamic capabilities can foster innovation. A nuanced finding of this research is the identification of a sector-specific difference in the impact of Digital Capabilities on Digital Innovation, with a partially significant difference observed between service and non-service sectors. This indicates varying dynamics of digital innovation across different industrial landscapes.

These conclusions contribute significantly to the existing literature on digital transformation, delineating the vital roles played by Digital Orientation and Dynamic Capabilities in driving digital innovation, while also highlighting the nuanced role of Company Readiness and sectoral differences. Organizations aiming to enhance digital innovation should focus on developing a strategic digital orientation that integrates digital goals into their core strategies and fosters a culture open to digital advancements. Simultaneously, the cultivation of digital dynamic capabilities, underscored by continuous learning and adaptability, is paramount. Although Company Readiness does not directly impact digital innovation, establishing a supportive infrastructure and skill base remains crucial for leveraging strategic orientation and dynamic capabilities effectively.

This research acknowledges a limitation in its focus primarily on internal company variables,

without considering external factors such as government regulations and market trends, which could significantly influence innovation outcomes. Future studies could benefit from including these external dimensions for a more comprehensive understanding of digital innovation dynamics. Furthermore, an expanded research agenda incorporating qualitative methods could provide deeper insights into the determinants of digital innovation, potentially enriching the quantitative findings with richer, context-specific nuances that affect digital innovation across various organizational contexts.

References

- Al-Ansari, Y., Pervan, S., & Xu, J. (2013). Innovation and business performance of SMEs: The case of Dubai. In *Education, Business and Society: Contemporary Middle Eastern Issues* (Vol. 6, Issue 3, pp. 162–180). <https://doi.org/10.1108/EBS-04-2013-0012>
- Almeida, F., Duarte Santos, J., & Augusto Monteiro, J. (2020). The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World. *IEEE Engineering Management Review*, 48(3), 97–103. <https://doi.org/10.1109/EMR.2020.3013206>
- Annarelli, A., Battistella, C., Nonino, F., Parida, V., & Pessot, E. (2021). Literature review on digitalization capabilities: Co-citation analysis of antecedents, conceptualization and consequences. *Technological Forecasting and Social Change*, 166, 120635. <https://doi.org/10.1016/J.TECHFORE.2021.120635>
- Arachchige, C. M. H. (2021). *Cascade Use In Circular Economy Business Models In The Textile And Fashion Industry – A Dynamic Capabilities Perspective*. University of Boras.
- Ardito, L., Raby, S., Albino, V., & Bertoldi, B. (2021). The duality of digital and environmental orientations in the context of SMEs: Implications for innovation performance. *Journal of Business Research*, 123, 44–56. <https://doi.org/10.1016/j.jbusres.2020.09.022>
- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815–824. <https://doi.org/10.1016/j.paid.2006.09.018>
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *Management Information Systems Quarterly*, 37(2), 471–482.
- Borowski, P. F. (2021). Innovation strategy on the example of companies using bamboo. *Journal of Innovation and Entrepreneurship*, 10(1), 1–17. <https://doi.org/10.1186/S13731-020-00144-2/TABLES/5>
- Bughin, J., & Van Zeebroeck, N. (n.d.). *The Best Response to Digital Disruption* (Vol. 58, Issue 4). <http://mitsmr.com/2oFIYgE>
- Casula, M., Rangarajan, N., & Shields, P. (2021). The potential of working hypotheses for deductive exploratory research. *Quality & Quantity*, 55(5), 1703–1725. <https://doi.org/10.1007/s11135-020-01072-9>
- 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. <https://doi.org/10.1016/j.jbusres.2019.03.035>
- Geissbauer, R., Vedso, J., & Schrauf, S. (2016). *Industry 4.0: Building the digital enterprise*. www.pwc.com/industry40
- Gobble, M. A. M. (2018). Digitalization, Digitization, and Innovation. *Research Technology Management*, 61(4), 56–59. <https://doi.org/10.1080/08956308.2018.1471280>
- Guo, L., & Xu, L. (2021). The Effects of Digital Transformation on Firm Performance: Evidence from China's Manufacturing Sector. *Sustainability*, 13(22), 1284.
- Gupta, S., Qian, X., Bhushan, B., & Luo, Z. (2019). Role of cloud ERP and big data on firm performance: a dynamic capability view theory perspective. *Management Decision*, 57(8), 1857–1882. <https://doi.org/10.1108/MD-06-2018-0633>
- Hai, T. N., Van, Q. N., & Tuyet, M. N. T. (2021). Digital Transformation: Opportunities and Challenges for Leaders in the Emerging Countries in Response to Covid-19 Pandemic. *Emerging Science Journal*, 5(Special Issue), 21–35. <https://doi.org/http://dx.doi.org/10.28991/esj-2021-SPER-03>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). UK Cengage Learning.
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural Equation Modeling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods*, 6, 53–60.
- Jun, W., Nasir, M. H., Yousaf, Z., Khattak, A., Yasir, M., Javed, A., & Shirazi, S. H. (2021). Innovation performance in digital economy: does digital platform capability, improvisation capability and organizational readiness really matter? *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-10-2020-0422>
- Junior, J. C. F., Maçada, A. C., & Brinkhues, R. (2017). Digital Capabilities as Key to Digital Business Performance. *AMCIS 2017 Proceedings*.
- Kenny, D. A., & McCoach, D. B. (2003). Effect of the Number of Variables on Measures of Fit in Structural Equation Modeling. *Structural Equation Modeling*, 10(3), 333–351. https://doi.org/10.1207/S15328007SEM1003_1
- Khin, S., & Ho, T. C. F. (2019). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Kindermann, B., Beutel, S., Garcia de Lomana, G., Strese, S., Bendig, D., & Brettel, M. (2021). Digital orientation: Conceptualization and operationalization of a new strategic orientation. *European Management Journal*, 39(5), 645–657. <https://doi.org/10.1016/J.EMJ.2020.10.009>
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. Guilford Press.
- Laforet, S. (2011). A framework of organisational innovation and outcomes in SMEs.

International Journal of Entrepreneurial Behaviour and Research, 17(4), 380–408.
<https://doi.org/10.1108/13552551111139638>

Lestari, E. R., Thoyib, A., Zain, D., & Santoso, I. (2013). Innovation as a Mediating Variable of the Relationship between Technological Capability and Firm Performance : A Conceptual Approach. *International Journal of Business and Behavioral Sciences*, 3(12), 41–50.

Levallet, N., & Chan, Y. (2022). Uncovering a new form of digitally-enabled agility: an improvisational perspective. *European Journal of Information Systems*.
<https://doi.org/10.1080/0960085X.2022.2035262>

Liu, X., Huang, Q., Dou, J., & Zhao, X. (2017). The impact of informal social interaction on innovation capability in the context of buyer-supplier dyads. *Journal of Business Research*, 78, 314–322. <https://doi.org/10.1016/j.jbusres.2016.12.027>

Lokuge, S., Sedera, D., Grover, V., & Dongming, X. (2019). Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Information and Management*, 56(3), 445–461. <https://doi.org/10.1016/j.im.2018.09.001>

Lopes de Sousa Jabbour, A. B., Jabbour, C. J. C., Godinho Filho, M., & Roubaud, D. (2018). Industry 4.0 and the circular economy: a proposed research agenda and original roadmap for sustainable operations. *Annals of Operations Research*, 270(1–2), 273–286.
<https://doi.org/10.1007/S10479-018-2772-8>

Lucas, J., Melo, N., Porpino De Castro, L., Soares Da Silva, J., & Fabiana Gohr, C. (2022). Readiness Factors And Dynamic Capabilities For Sustainability-Oriented Innovation. *Future Studies Research Journal*, 1–30. <https://doi.org/10.24023/FutureJournal/2175-5825/2022.v15i1.674>

Magni, M., Palmi, P., & Salvemini, S. (2018). Under pressure! Team innovative climate and individual attitudes in shaping individual improvisation. *European Management Journal*, 36(4), 474–484. <https://doi.org/10.1016/j.emj.2017.07.009>

Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. In *Business and Information Systems Engineering* (Vol. 57, Issue 5, pp. 339–343). Gabler Verlag.
<https://doi.org/10.1007/s12599-015-0401-5>

McIntosh, C. N. (2007). Rethinking fit assessment in structural equation modelling: A commentary and elaboration on Barrett (2007). *Personality and Individual Differences*, 42(5), 859–867. <https://doi.org/10.1016/j.paid.2006.09.020>

Mohamud, M., & Sarpong, D. (2016). Dynamic capabilities: towards an organizing framework. *Journal of Strategy and Management*, 9(4), 511–526. <https://doi.org/10.1108/JSMA-11-2015-0088/FULL/XML>

Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation

- Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*, 41(1), 223–238. <https://doi.org/10.25300/MISQ/2017/41:1.03>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8). <https://doi.org/10.1016/j.respol.2019.03.018>
- Ojala, A., Evers, N., & Rialp, A. (2018). Extending the international new venture phenomenon to digital platform providers: A longitudinal case study. *Journal of World Business*, 53(5), 725–739. <https://doi.org/10.1016/j.jwb.2018.05.001>
- Panda, S., & Rath, S. K. (2021). Information technology capability, knowledge management capability, and organizational agility: The role of environmental factors. *Journal of Management & Organization*, 27(1), 148–174. <https://doi.org/10.1017/JMO.2018.9>
- Quinton, S., Canhoto, A., Molinillo, S., Pera, R., & Budhathoki, T. (2018). Conceptualising a digital orientation: antecedents of supporting SME performance in the digital economy. *Journal of Strategic Marketing*, 26(5), 427–439. <https://doi.org/10.1080/0965254X.2016.1258004>
- Rupeika-Apoga, R., Petrovska, K., & Bule, L. (2022). The Effect of Digital Orientation and Digital Capability on Digital Transformation of SMEs during the COVID-19 Pandemic. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(2), 669–685. <https://doi.org/10.3390/jtaer17020035>
- Szukits, Á. (2022). The illusion of data-driven decision making – The mediating effect of digital orientation and controllers’ added value in explaining organizational implications of advanced analytics. *Journal of Management Control*, 33(3), 403–446. <https://doi.org/10.1007/s00187-022-00343-w>
- Teece, D. J. (2018). Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world. *Research Policy*, 47(8), 1367–1387. <https://doi.org/10.1016/j.respol.2017.01.015>
- Tiengtavaj, S., Phimonsathienand, T., & Fongsuwan, W. (2017). Ensuring Competitive Advantage Through Innovationcapability And Clustering In The Thai Automotive parts Molding Industry: A Sem Approach Mongkut’s Institute Of Technology. *Management and Production Engineering Review*, 8(1), 89–100. <https://doi.org/10.1515/mper-2017-0010>
- Tolstoy, D., Nordman, E. R., & Vu, U. (2022). The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs. *International Business Review*, 31(3). <https://doi.org/10.1016/j.ibusrev.2021.101946>
- Torres, A. P., Marshall, M. I., & Sydnor, S. (2019). Does social capital pay off? The case of small business resilience after Hurricane Katrina. *Journal of Contingencies and Crisis Management*, 27(2), 168–181. <https://doi.org/10.1111/1468-5973.12248>
- Valmohammadi, C. (2017). Customer relationship management: Innovation and performance. *International Journal of Innovation Science*, 9(4), 374–395. <https://doi.org/10.1108/IJIS-02->

2017-0011

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/https://doi.org/10.1016/j.jsis.2019.01.003>

Weill, P., & Woerner, S. L. (2015). Thriving in an Increasingly Digital Ecosystem. MIT Sloan Management Review. 56. *MIT Sloan Management Review*, 56(4).

Westerman, G., Calm ejane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). *The Digital Advantage: How digital leaders outperform their peers in every industry*.

Yang, C., Huang, Q., Li, Z., Liu, K., & Hu, F. (2017). Big Data and cloud computing: innovation opportunities and challenges. In *International Journal of Digital Earth* (Vol. 10, Issue 1, pp. 13–53). Taylor and Francis Ltd. <https://doi.org/10.1080/17538947.2016.1239771>

Yeow, A., Soh, C., & Hansen, R. (2018). Aligning with new digital strategy: A dynamic capabilities approach. *Journal of Strategic Information Systems*, 27(1), 43–58. <https://doi.org/10.1016/j.jsis.2017.09.001>

Yu, Y., Huo, B., & Zhang, Z. (2021). Impact of information technology on supply chain integration and company performance: evidence from cross-border e-commerce companies in China. *Journal of Enterprise Information Management*, 34(1), 460–489. <https://doi.org/10.1108/JEIM-03-2020-0101/FULL/XML>

Zawislak, P. A., Alves, A. C., Tello-Gamarra, J., Barbieux, D., & Reichert, F. M. (2013). Influences of the Internal Capabilities of Firms on their Innovation Performance: A Case Study Investigation in Brazil. In *International Journal of Management* (Vol. 30, Issue 1).

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What motivates customers to participate in social commerce? the impact of technological environments and virtual customer experiences. *Information and Management*, 51(8), 1017–1030. <https://doi.org/10.1016/j.im.2014.07.005>

Zhen, Z., Yousaf, Z., Radulescu, M., & Yasir, M. (2021). Nexus of digital organizational culture, capabilities, organizational readiness, and innovation: Investigation of smes operating in the digital economy. *Sustainability (Switzerland)*, 13(2), 1–15. <https://doi.org/10.3390/su13020720>

Zhou, K. Z., & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal*, 31(5), 547–561. <https://doi.org/10.1002/smj.830>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>)