Digitizing Success: Evaluating the Influence of Digitalization on Business Performance, Innovation Capabilities, and Knowledge Management in a Water Utility Company in Batangas

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Abstract

The purpose of the study is to investigate the influence of digitalization on a specific water utility company in Batangas, with a focus on business performance, innovation capabilities, and knowledge management. The study is inspired by the need for the water utility industry to transition from conventional to digitally driven operations to meet industry demands and improve overall efficiency. The study addresses the need to embrace digitalization for sustainable water management. To assess the influence of digitalization on the company, the study employs a quantitative, descriptive, causal research design with a Likert scale to measure the variables in the questionnaires. The research framework considers the connections between digitalization, business performance, innovation capabilities, and knowledge management. The study used a simple random sampling strategy to select 115 respondents from the water utility. Mean and standard deviation is used to describe the level of perception of the employee with the given variables while linear regression is used to evaluate the hypotheses. The study found that all relationships statistically significant between digitalization and innovation capabilities, knowledge management, business performance, and mediation analyses show partial mediation. Thus, the study recommends prioritizing digital transformation through tools like smart meters, employee training, and knowledge management to improve efficiency and address challenges like water scarcity.

Keywords: Digitalization; Knowledge Management; Innovation Capabilities; Business Performance; Strategic Planning

1. **Introduction**

1.1. Background of the Study

The water utility company's main mandate is to manage water resources efficiently for the effective delivery of water services to the residential, commercial, and industrial consumers in Lipa City and Municipalities of Malvar, Mataas na Kahoy, some areas of San Jose, Batangas, and Balete.

Currently, the water utility relies on a conventional approach to some of its processes. While there may be pockets of modernization, several company operations continue to follow conventional methods. However, considering the changing times and the numerous benefits associated with digital innovation, there is a growing need to shift towards more modern, technology-driven processes to improve overall efficiency and effectiveness in water management and service delivery. It is imperative to consider transitioning towards more digital and innovative processes. Embracing digitalization can significantly enhance efficiency, transparency, and accessibility in managing water resources and providing services to customers. It is time to explore and adopt digital tools and strategies to ensure the sustainable and effective delivery of water services to the community.

The research problem centers on evaluating the influence of employing digitalization as an innovative solution to improve business performance. In response to an urgent challenge, the water utility company needs to transition from its conventional operational approach to a contemporary, digitally driven model. According to H. Aboelnga, et.al (2023), “The digital transition of the water sector can play a key role in accelerating progress towards the sustainable development goal no. 6 on safely managed water and sanitation.” Successfully navigating this transformation is essential for the company to keep pace with technological advancements, optimize resource management, and deliver superior services to its clients while ensuring its long-term sustainability. The company's ongoing success and relevance in a rapidly changing environment hinge on effectively addressing this critical issue.

The water utility industry is important in ensuring long-term water resource management, which is essential for human well-being and environmental preservation. As communities face increasing water scarcity and contamination, digital technology is a promising solution for effectively addressing these issues. Smart meters, Internet of Things sensors, data analytics, and advanced infrastructure management systems are just a few examples of digital innovations that have the potential to change the way water utilities operate.

1.2. Literature Review

Previous studies of A. Merhaba et.al (2021) state that to create value, utilities need to look past the hype surrounding technology. An organization's potential benefit from digital transformation cannot be determined by the sheer number of digital use cases, and this frequently results in wasteful spending. In relation, the number of digital use cases implemented does not always translate into significant benefits for the organization. The delay of the shift of the water company to digital innovation is because the technology value does not have feasible ROI making it remain in the traditional way of doing processes. Furthermore, shifting to digital innovation is no easy task as it requires many subjects like investment, security, and infrastructure to be addressed. This discrepancy can lead to inefficient investments, such as allocating resources to digital initiatives without a clear understanding of their effectiveness or alignment with strategic goals. To close this gap, utilities should prioritize quality over quantity, evaluating digital use cases based on their potential to improve operational efficiency, customer satisfaction, and overall strategic goals.

The Water Utility Company must change from a conventional, traditional approach to a modern, digitally driven operational model to address a critical challenge that requires immediate attention. To meet the changing demands of the water industry and streamline processes, it is necessary to integrate innovative tools and techniques. The business must successfully navigate this transformation to stay abreast of technological developments, enhance resource management, and offer its clients superior services while ensuring long-term

sustainability. The company's continued success and relevance in a rapidly changing environment depend on resolving this crucial problem.

Many businesses are far from prepared to reap the benefits of digitalization, with the primary goal of increasing efficiency rather than pursuing a growth strategy. This imbalance is due to the difficulties associated with identifying profitable configurations of competencies, assets, and data generated by technological advances, controlling them, and taking advantage of them in an agile organization. (B. Joakim, 2020). The reviewed literature reveals a common difference in firms' digitalization strategies, with many prioritizing short-term efficiency gains over long-term growth strategies. It emphasizes the complexities of effectively identifying, orchestrating, and deploying digital technologies.

Digitalization is envisioned as a business development process in which digital solutions are used for automation and innovation. It should not be confused with "digitization," which simply refers to the conversion of analog data into digital data. Digitalization is a continuous journey that necessitates parallel organizational transformation, and it is viewed as a means of maintaining and innovating services, increasing business opportunities, and connecting to other municipal services. The potential of technological innovation can be leveraged by developing roadmaps and strategies, establishing new key roles with distinct responsibilities, and involving the entire organization in the transition (Arnell et al., 2023). The reviewed literature emphasizes the distinction between digitization and digitalization, with the last being positioned as a transformative and ongoing process with far-reaching implications for business development. Organizations are encouraged to develop clear strategies, establish new roles, and involve all members in the digital transformation process to successfully embrace digitalization.

According to C. Boyle et al., (2022), changing technologies, social behaviors, and expectations surrounding digital transformation will continue to push water organizations toward digital transformation. This transformation will also be driven by changing regulatory requirements and a greater emphasis on increasing efficiency and improving customer relationships. A corporate-wide emphasis on digital governance, culture, skills, and knowledge, combined with "single point of truth" data management, will allow operations, customer and community engagement, and automated systems to achieve economic and performance efficiencies, enhanced consumer satisfaction, and improved adherence to regulations. The study sheds light on the critical factors driving digital transformation within water organizations. According to the study, the interaction of components, such as evolving technologies, shifting social behaviors, and shifting expectations, is enough to water organizations to embark on digital transformation journeys. Furthermore, the ever-changing regulatory landscape is forcing these organizations to adapt by leveraging digital tools. A primary emphasis on improving efficiency and cultivating better customer relationships has also been identified as a key driver of this transformation.

As has been previously mentioned by Poch et al., (2020), the water sector has been transitioning in recent years toward the so-called "fourth revolution" (Sedlak, 2014), which aims for more rational and sustainable water resource management. This transformation has collided and merged with the digital revolution (Garrido-Baserba et al., 2020), which combines the power of Big Data analytics and Artificial Intelligence approaches to develop new water management functionalities.

This research topic is academically relevant because it combines elements of digitalization, innovation, business performance, and knowledge management of the water utility industry. Engineering, environmental science, information technology, and business management are all part of it. Investigating the relationship between digitalization as an innovation tool and water utility operations can help us gain a better

understanding of how technological advancements shape modern infrastructure management and public service delivery. Investigating the efficacy of digital technology in water utility management is a critical step toward addressing pressing water issues, advancing innovation, and improving sustainable practices in the modern era.

1.2.1 Influence between Digitalization and Business Performance

Although digitalization is a reality for businesses and contributes to value creation, few studies have examined its impact on service sector business performance. (Ribeiro-Navarrete et al., 2021). Furthermore, digital transformation (DT) has caught the interest of management and organizational scholars over the last decade. Furthermore, businesses are increasingly interested in using DT to gain a competitive advantage. Nonetheless, research on DT outcomes is limited. (Masoud, R.; Basahel, S., 2023). Over and above, the government should encourage the development of digital skills, foster partnerships between businesses and technology providers, and encourage business collaboration, all of which are conducive to extending digitalization within the business innovation model and improving business performance (Wang et al., 2023).

1.2.2 Influence between Digitalization and Innovation Capabilities

The study of Portillo et al., (2022) states that it is essential to digitalize the company to improve its performance, but that this digitalization must be supported by a clear innovation strategy that allows the company to improve its performance. Moreover, it was confirmed that there is a significant difference in the level of product and service quality, product and service development capacity, productivity, and overall performance levels between enterprises undergoing digital transformation for less than two years and those who have been in the process for more than two years in favor of the latter (Popović-Pantić et al., 2019). In addition, for firms with stronger innovative capabilities, the level of firm digitalization and digital industry innovation will have a greater influence on the level of firm innovation. To summarize, digital innovation, as an emerging phenomenon, is likely to have a significant impact on innovation research in general, providing great opportunities for research while also posing new challenges. While researchers have identified some characteristics of digital innovation, others have yet to be identified. (Bogers et al., 2021).

1.2.3 Influence between Digitalization and Knowledge Management

Coherent strategies for the adoption of technology for the development of processes and services and knowledge management practices support organizational changes demanded by digital transformation. Moreover, the relationship between technology and knowledge and their contribution to innovation and co-creation are perceived. In the future, the dimensions most affected by this relationship will be identified, to improve the continuous renewal of public process and services through organizational knowledge management (Antunes, R., 2022). The field of knowledge management has been rapidly evolving in response to changing trends and technological advancements. To keep up with the changing landscape, data digitization and digital transformation have become unavoidable components of knowledge management methods. (Panda, 2022). The success of digital government comes to be related to

the quality of organizations' knowledge management, with both resulting to significant improvements in the public sector. (Alvarenga et al., 2020).

1.2.4 Mediating Influence of Knowledge Management between Digitalization and Innovation Capabilities

It has been discovered that most research has been based on the study of knowledge management along its dimensions, with no research incorporating the capabilities of the knowledge management process and its effect on two activities that generate innovation. (López et al., 2023). Plus, as organizations have realized the importance of managing knowledge in order to remain competitive in their markets, they have become increasingly focused on knowledge management methods. Knowledge Management (KM) oversees an organization's efficiency, effectiveness, and innovation. (Idrees et al., 2023). Also, theoretical perspective is that knowledge management and intellectual capital assist a firm in extending and deploying its entrepreneurial orientation to improve innovation, particularly if the firm operates in a volatile market. (Yu et al., 2022).

1.3 Research Framework

The research framework of this study was adopted from the study entitled “The Effect of Digitalization on Innovation Capabilities through the Lenses of the Knowledge Management Strategy” by S.Ramírez et al., (2022). The conceptual framework presented below was used to provide a simple, logical, and clear structure for assessing the influence of digitalization as an innovation driver for improving business performance. Moreover, the independent variable examined in the study is digitalization while the dependent variables are business performance, innovation capabilities, and knowledge management. The study investigates the impact of digitalization on business performance and innovation capabilities, as well as the mediating effect of KM on the relation between digitalization and innovation capabilities. It was concluded that digitalization has a direct and positive impact on business results, as well as a direct and positive impact on innovation capabilities. Furthermore, it has been found that digitalization has an indirect and positive effect on innovation capabilities via knowledge management strategies.

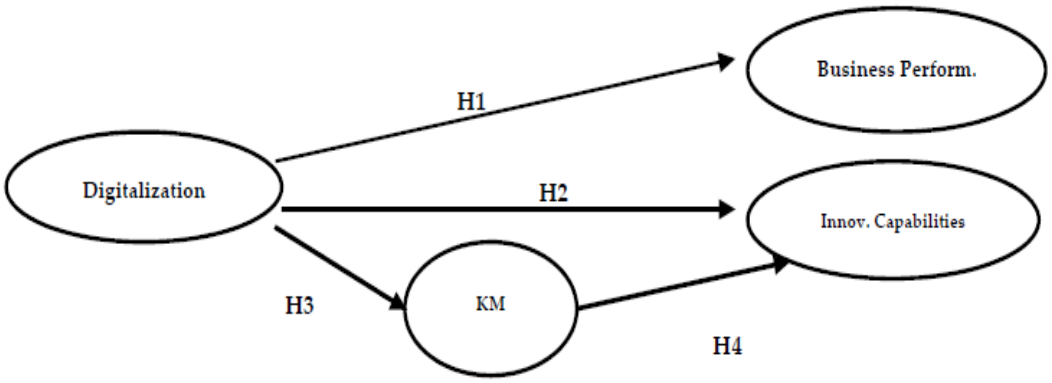

Figure 1. Conceptual Framework

This study adopted the framework of S.Ramírez et al., (2022) which focuses on evaluating the ways companies should approach digital transformation, strengthening the knowledge management role, developing digital and innovation capabilities, and finally, improving the effects on business performance in companies with IT, technology, consulting and programming sectors. Meanwhile, this study only focuses on assessing the influence of digitalization on business performance, innovation capabilities, and knowledge management, and mediating influence of knowledge management between digitalization and innovation capabilities in a water utility.

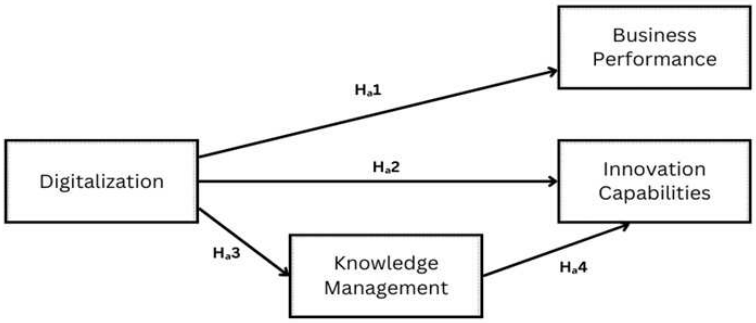

Figure 2. Operational Framework

1.4 Significance of the Study

Digitizing public services is, now, an essential necessity for numerous governments around the world. An improved government through digitization will not only have a growing effect on businesses, but it will also be able to intensify citizen engagement and push for economic growth (Alvarenga et al., 2020). In response to changing industry demands, the study aims to evaluate the influence of digitalization on the company's transition from conventional methods to modern, digitally driven operations. This change is not only necessary for meeting industry standards, but it also has the potential to significantly improve business performance.

In addition, the study's findings are in line with the Sustainable Development Goals (SDGs) of the United Nations, particularly SDG 9 (Industry, Innovation, and Infrastructure) and SDG 6 (Clean Water and Sanitation). As previously stated in the article of R. Wickramatunga (2023) “Sustainable Development Goal 9 seeks to build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation. This SDG encompasses three important aspects of sustainable development: infrastructure, industrialization, and innovation.” The study contributes to the overall achievement of these SDGs by demonstrating the potential of digitalization to improve efficiency, reduce costs, and enhance sustainability.

1.5 Hypotheses

Digitalization has emerged as a transformative force in today's dynamic and competitive business landscape, profoundly influencing various aspects of organizational operations and performance. Cloud computing, big data analytics, and artificial intelligence are transforming how businesses interact with customers, manage resources, and drive innovation. With that mentioned, the following are the assumptions that were tested in this study.

The following hypotheses were evaluated in the study:

Ha1: Digitalization positively influences business performance.
Ha2: Digitalization positively influences innovation capabilities.
Ha3: Digitalization positively influences knowledge management.
Ha4: Knowledge management mediates the relationship between digitalization and innovation capabilities.

2. **METHODS**

2.1. Research Design

The study used a quantitative, descriptive, causal research design. Quantitative method was used in the conduct of the survey with a hard copy questionnaire to assess the influence of digitalization on the company's business performance. Since the purpose of the study is to assess the influence of digitalization, the researcher used a quantitative, descriptive, causal method of research.

2.2. Respondents of the Study

The respondents of the study were the employees of the water utility company. The respondents are either male or female under the age bracket of 22 to 62 years of age. The research appears to be targeted toward experienced employees with higher education. The majority of respondents (68.7%) are men. Most of them (53.91%) have a college degree, with quite a few (36.52%) holding postgraduate degrees. Only a small proportion (9.57%) have a secondary education. Over half (53.04%) earn less than Php 29,000 per month, with the proportion (37.39%) earning between Php 29,001 and Php 65,000. Just under half (48.7%) are mid-level employees, with a portion (20%) being senior-level. A quarter (24.35%) have been working for 2-5 years, while the majority (53.04%) have been there for 11 years or longer.

2.3. Sampling Design

With an effect size of .15; degree of error of .05 and .95 power, the minimum sample size for 2 predictors, using G power is 107. To conclude, a minimum of 107 respondents from water utility company employees

was required for the survey. However, the study used 115 respondents as it is the number of employees who answered the survey.

The study used a simple random sampling strategy, specifically targeting participants within the company. The researcher chose simple random sampling as it is a non-biased sampling method that is suitable to use in measuring the effect of digitalization.

2.4. Research Tools and Instruments

The purpose of the study was to evaluate the influence of digitalization as an innovation tool for enhancing business performance. A Likert scale questionnaire survey is the type of questionnaire that was adopted from the study entitled “The Effect of Digitalization on Innovation Capabilities through the Lenses of the Knowledge Management Strategy" by Sergio Sánchez Ramírez et al. that measures digitalization and its effect on business performance, innovation capabilities, and knowledge management. In addition, the influence of knowledge management on innovation capabilities. The questionnaire was divided into four parts which are digitalization, knowledge management, innovation capabilities, and business performance. Digitalization has 8 survey questions. Knowledge management has 7 survey questions while innovation capabilities and business performance have 4 survey questions each. It was answered through a rating system with 1 as strongly disagree, 2 as disagree, 3 as neither agree nor disagree, 4 as agree and 5 as totally agree. The sample survey questionnaire was sent to another water utility company that provides similar services and processes to conduct a pre-test and determine whether the instrument is reliable. Upon tabulating, the gathered data from 30 respondents in another water utility company during the pilot testing, the variables included in the instrument specifically digitalization, knowledge management, innovation capabilities, and business performance passed the reliability test with 0.931, 0.926, 0.856, and 0.951 Cronbach alpha coefficients. The overall reliability of the entire set of scales, which includes 23 items, is remarkably high, as shown by an overall Cronbach's Alpha of 0.979, indicating strong internal consistency across the entire range of measures used in the study. Cronbach's alpha for all categories is at least .700, which is generally considered good. After the pre-test had been completed and verified to be reliable, a hardcopy questionnaire was administered to actual respondents.

2.5. Data Analysis and Interpretation

Collection of data was administered from the second week of March 2024 up to the first week of April 2024. Survey questionnaires were distributed randomly to employees of the water utility company through pen and paper. To test the hypothesis and develop statistical analysis, the Simple Linear Regression method and the Multiple Linear Regression method were used in this paper. Simple linear regression depicts a linear relationship between one independent (predictor) and one dependent (output) variable while multiple linear regression is a method for determining the relationship between a single dependent variable and multiple independent variables (Mali, 2024). Since hypotheses 1, 2, and 3 have only a single dependent variable and one independent variable thus use simple linear regression. Meanwhile, hypothesis 4 has one dependent variable and multiple independent variables thus using multiple regression analysis. In addition, Path A, B, C, and MR (Multiple Regression) have been conducted to determine the interpretation of how the variables mediate. Table 1 shows the conclusion guide for the result of mediation using multiple regression analysis.

Table 1. Conclusion Guide for Multiple Regression Analysis

Path C	Path A	Path B	MR		Interpretation
NS	NS	S	NS	S	No Mediation
S	S	S	S	NS	No Mediation
S	S	S	NS	S	Full Mediation
S	S	S	S	S	Partial Mediation
S	S	S	NS	NS	No Mediation

The study employed a statistical test to determine the mean and standard deviation, which described the respondents' perceptions in digitalization, knowledge management, innovation capabilities, and business performance. Based on their level, mean scores are categorized in this analysis. Scores between 4.21 and 5.00 are regarded as very high and show a strongly positive response. A score in the high range, or 3.40 to 4.19, indicates a positive view. Scores in the range of 2.60 to 3.39 are classified as moderate, indicating a neutral or somewhat positive viewpoint. Low scores, ranging from 1.80 to 2.59, suggest a somewhat negative point of view. Lastly, scores ranging from 1.00 to 1.79 are deemed extremely low, indicating a strongly negative response.

Table 2. Mean Data Analysis and Interpretation

Likert Scale	Mean Value	Adjectival Rating	Interpretation
5	4.20 - 5.00	Strongly Agree	Very High
4	3.40 - 4.19	Agree	High
3	2.60 - 3.39	Neither Agree nor Disagree	Moderate
2	1.80 - 2.59	Disagree	Low
1	1.00 - 1.79	Strongly Disagree	Very Low

2.6. Ethical Considerations

The researcher took into consideration ethical measures in the conduct of the survey. A written consent from the organization's higher management was sought prior to the conduct of the research. In addition, all the information of participants who were part of the survey remained anonymous and confidential by Republic Act 10173 - Data Privacy Act of 2012.

3. RESULTS AND DISCUSSIONS

3.1. *Descriptive Statistics*

Table 3 presents the resulting mean of each variable of the study. The first row shows that the employees have a "high" level of perception towards digitalization (M = 4.18, SD = 0.583). This supports the study of Mo et al. (2022) that the relationship between perceived innovativeness and the presence of designated innovation teams highlights the significance of structured initiatives in shaping organizational innovation. The employees' perception towards digital tools and digital transformation were positively correlated. It means that there is a very positive and good level of agreement among the employees about their perception of digitalization. The second row demonstrates that employees have a "very high" level of perception regarding knowledge management (M = 4.29, SD = 0.546) implying that there is an extremely favorable and good level of agreement among employees regarding their perception of knowledge management and support the study that employees concluded that knowledge management should not be neglected in the digital age, which is associated with continuous change, primarily because it ensures that knowledge is created, shared, retained, and disseminated (Mabunda & Du Plessis, 2022). Third row also shows that the employees have a "very high" level of perception towards innovation capabilities (M = 4.22, SD = 0.647) that means that employees have an extremely positive and significant level of agreement with regard to their perception of innovation capabilities (Rakuten, 2023). Lastly, employees also have a "high" level of perception towards business performance (M = 4.18, SD = 0.671). This indicates that employees have a very positive and significant level of agreement about their perception of business performance. Employee perceptions can have an impact on a company's overall performance. Employees who perceive their work environment as positive and supportive are more likely to be engaged and motivated, which generally leads to improved business performance (Parker, 2023).

Table 3. Level of Perception of Employees

Item	Mean	Std. Deviation	Interpretation
Digitalization	4.18	0.583	High
Knowledge Management	4.29	0.546	Very High
Innovation Capabilities	4.22	0.647	Very High
Business Performance	4.18	0.671	High

3.2. *Regression Analysis*

3.2.1. The Influence of Digitalization on Business Performance

Table 4 presents information on digitalization (IV) as a predictor variable of business performance (DV). Results show that the perceived digitalization accounted for 58.1% of the variation in business performance with adjusted R^2 = 57.7%.

Table 4. The Influence of Digitalization on Business Performance

	B Coefficients	**p-value**	**Interpretation**
Constant	0.512	0.000	
Digitalization	0.877	0.000	Significant
R2 = 0.581	F-value = 156.602		P-value = 0.000

Dependent Variable: Business Performance

The regression established that digitalization could statistically significantly predict business performance, F(1,114) = 156.602, p < .001. The table also shows that a 1-unit increase in digitalization results in a 0.877 increase in business performance and this positive effect is statistically significant at p-value < 0.05.

It can be noted that the results showed that digitalization positively influences business performance. This means that the higher the digitalization the higher the business performance. This supports the study of Wang et al. (2023) which analyze the impact of digitalization on business performance within business innovation and stated that the structured relationship, digital capabilities are classified into three dimensions: (1) basic digital capabilities, (2) digital operation capabilities, and (3) digital integration capabilities, all of which have a significant positive impact on business performance. Furthermore, digital transformation, customer experience, and IT innovation all improve a company's performance, with customer experience having the strongest effect (Masoud, R.; Basahel, S., 2023).

3.2.2. The Influence of Digitalization on Innovation Capabilities

Table 5 presents information on digitalization (IV) as a predictor variable of innovation capabilities (DV). Results show that the perceived digitalization accounted for 74.1% of the variation in innovation capabilities with adjusted R2 = 73.9%.

Table 5. The Influence of Digitalization on Innovation Capabilities

	B Coefficients	p-value	Interpretation
Constant	0.237	0.000	
Digitalization	0.955	0.000	Significant
R2 = 0.741	F-value = 323.632		P-value = 0.000

Dependent Variable: Innovation Capabilities

The regression established that digitalization could statistically significantly predict innovation capabilities, F(1,114) = 323.632, p < .001. The table also shows that a 1-unit increase in digitalization results in a 0.955 increase in innovation capabilities and this positive effect is statistically significant at p-value < 0.05.

The findings indicate that digitalization has a positive influence on innovation capabilities. This means that the higher the digitalization, the better the innovation capabilities which complements the study of Pérez et al. (2021) saying that strategic orientation toward digitalization affects innovation capability. This also supports the study of Li et al., (2023) the level of innovation in the digital industry has an adverse impact on company innovation in other areas.

3.2.3. *The Influence of Digitalization on Knowledge Management*

Table 6 presents information on digitalization (IV) as a predictor variable of innovation capabilities (DV). Results show that the perceived digitalization accounted for 74.1% of the variation in innovation capabilities with adjusted R^2 = 73.8%.

Table 6. The Influence of Digitalization on Knowledge Management

	B Coefficients	p-value	Interpretation
Constant	0.925	0.000	
Digitalization	0.805	0.000	Significant
R2 = 0.741	F-value = 322.778		P-value = 0.000

Dependent Variable: Knowledge Management

The regression established that digitalization could statistically significantly predict innovation capabilities, F(1,114) = 322.778., p < .001. The table also shows that a 1-unit increase in digitalization results in a 0.805 increase in innovation capabilities and this positive effect is statistically significant at p-value < 0.05.

The findings proved that digitalization has a positive influence on knowledge management. This indicates the higher the digitalization, the better the knowledge management which supports the study of Sijabat, R. (2022) that entrepreneurs and managers should also strive to better understand, adopt, and implement digital business and knowledge management practices. These practical recommendations are based on the theoretical findings which indicate that knowledge management is important in the digitalization of business activities and thus improves business performance.

3.2.4. The Mediating Influence of Knowledge Management between Digitalization and Innovation Capabilities

Table 7 illustrates that the relationship between digitalization and innovation capabilities is significant (β=0.955, p-value < .05). The relationship between digitalization and innovation capabilities remains significant (β=0.475, p-value < .05) when knowledge management is considered as mediator (β=0.596, p-value < .05), thus demonstrating a partial mediation.

Table 7. The Mediating Influence of Knowledge Management between Digitalization and Innovation Capabilities

	Unstandardized B Coefficients	p-value	Interpretation	Indirect Effect	Percent Mediation
Constant	0.237	0.000			
Digitalization	0.955	0.000	Significant		
Constant	-0.315	0.114		0.832	0.871
Digitalization	0.475	0.000	Significant		
Knowledge Management	0.596	0.000	Significant		

Dependent Variable: Innovation Capabilities

To further investigate the mediator, the Sobel test was utilized. The results confirmed that knowledge management significantly mediated the relationship between digitalization and innovation capabilities. ($Z = 12.954$, $p < .05$).

The findings show digitalization influences innovation capabilities, and this influence is still significant even when considering knowledge management as a mediator. The study also confirms that knowledge management partially mediates the relationship between digitalization and innovation capabilities. This coherent that knowledge management techniques can promote innovative processes and achieve long-term company success by generating fresh ideas. Particularly if it is carried out through digitalization and in a favorable organizational setting (Zavatin et al., 2023). Similarly, knowledge management practices both directly and indirectly contribute to firm innovation. The generation, storage, and application of knowledge all have a significant and positive impact on firm innovation. As a hierarchy, knowledge management practices contribute to firm innovation, with the link through knowledge application having the biggest effect on innovation (Ode and Ayavoo, 2020).

4. Conclusion

All relationships are statistically significant, and both mediation analyses show partial mediation. The first hypothesis indicates a clear and positive influence of digitalization on business performance thus Ha1 is supported. Second hypothesis proved that digitalization positively influences innovation capabilities thus Ha2 is supported. Also, a positive influence of digitalization on knowledge management in the third hypothesis thus Ha3 is supported. Furthermore, it is important to note that the mediating effect of knowledge management is specific to the relationships because of the direct relationship between digitalization and innovation capabilities when knowledge management is factored into the model, digitalization and innovation capabilities remain significant thus Ha4 is supported. Businesses must focus on digital transformation of their business models, which requires changes across all activities in the business operation process. It's crucial for businesses to recognize the importance of digital transformation for their operations and company development, and to develop strategic plans and actions for digital business operations (Nguyen et al. 2023).

In relation, water district must recognize the transformative power of digitalization. The study provides compelling evidence that digitalization fosters innovation, strengthens knowledge management, and ultimately leads to improved business performance.

5. Recommendation

The study shows that digitalization has a definite beneficial influence on knowledge management, innovation capabilities, and eventually business performance. Four items are recommended. (1) The district should embrace digital transformation throughout its operations to take advantage of these advantages through evaluation and exploration of specific digitalization tools such as Smart meters, Internet of Things sensors, data analytics, and advanced infrastructure management systems which can be beneficial to the organization. (2) In terms of innovation, the water utility should provide training, and seminars and upskill employees to effectively utilize digital tools and processes that can foster new ideas and solutions for improving operations and service delivery and foster a culture that embraces and prioritizes digital innovation. (3) The water district should also develop strategies to effectively collect, share, and leverage knowledge within the organization. Furthermore, with knowledge management, the water utility should explore and use digital platforms that can facilitate knowledge sharing, collaboration, and learning, leading to a more knowledgeable workforce. (4) Ultimately, in terms of business performance, digitalization can lead to improved efficiency, cost savings, and better outcomes for customers. The water utility should prioritize digitalization initiatives as a strategic plan. By focusing on how to improve innovation capabilities and knowledge management, digitalization can address issues such as water scarcity and leakage that lead to better business performance. In addition, developing a roadmap for implementation that outlines key areas for digitalization improvement within the water utility company with consideration to budget, infrastructure, and manpower needs. By following these recommendations, the organization can use digital solutions to grow into a more creative, knowledgeable, and productive company.

6. Limitations of the Study

The study used general ideas of digitalization, innovation, knowledge management, and business performance in evaluating the relationship between variables. However, it can be used for future studies to evaluate the relationship between variables in terms of their specific elements. In addition, the study did not use any demographics to understand the relationship between variables, but it can be used in future research to evaluate the influence of demographics such as age, gender, monthly income, and job level type.

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