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The Role of Digital Leadership and Knowledge Management in Realizing the Digital Transformation of the Directorate General of Taxes with Organizational Agility as Mediation and Digital Culture as Moderation

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A B S T R A C T
The purpose of this research is to examine the relationship between digital culture, the digital transformation of the Directorate General of Taxes (DGT), and digital leadership, knowledge management, and organisational agility. In order to determine the nature of the relationships between the variables, this quantitative study used descriptive statistics and SEM-PLS analysis. We used dynamic capability theory to analyse data gathered from a survey of 450 DGT employees that were selected using cluster sampling techniques. Knowledge management only significantly affected organisational agility, whereas digital leadership significantly impacted both organisational agility and DGT's digital transformation. The connection between digital leadership and knowledge management on digital transformation was enhanced through organisational agility, which operated as a mediator. Meanwhile, digital culture did not act as a moderating variable, but rather as a supporting element that increased the effectiveness of digital leadership, knowledge management, and organizational agility. These findings confirm that DGT's digital transformation is determined by the organization's core capabilities, while digital culture functions as an enabler that facilitates the creation of these capabilities.

INTRODUCTION

The evolution of digital technology has profoundly altered the methods through which companies carry out their operations (Ellström et al., 2022). The shift to digital is no longer considered a luxury but a necessity for gaining a competitive edge through increased productivity, effectiveness, and efficiency (AlNuaimi et al., 2022). Nevertheless, research shows that digital transformation projects still have a high failure probability, mostly because of the complexity, magnitude, and organisational unreadiness in handling the non-technological components of the transformation, even if it is widely acknowledged as an important topic (Al Maazmi et al., 2024).

This phenomenon is also reflected in the digital transformation of the Directorate General of Taxes (DGT) through the implementation of Coretax. Although designed as an integrated system to reform tax administration, Coretax is deemed unsuccessful in achieving its intended goals, leading DGT to reactivate the legacy system as a support system. This situation indicates that the failure of digital transformation is not solely due to technology, but also to more fundamental internal organizational factors.

Based on dynamic capabilities theory, the success of digital transformation is largely determined by the micro-organizational foundations that enable organizations to effectively sense, seize, and reconfigure (Ellström et al., 2022). Previous research has identified organizational agility, digital leadership, and knowledge management as key capabilities that play a crucial role in driving the success of digital transformation (AlNuaimi et al., 2022; Zhang et al., 2023; Alakaş, 2024; Al Maazmi et al., 2024; Cardoso et al., 2024; Khattak et al., 2025). The demands of digital transformation are high in terms of organisational adaptation speed, digital leadership implementation, and knowledge management and transfer efficacy, however there are some empirical evidence at DGT that suggest these three factors are not entirely linked.

Beyond the direct impact of these three factors, prior research has also shown that digital culture moderates the association between digital leadership, knowledge management, and digital transformation, and organisational agility mediates the relationship (Alakaş, 2024; An et al., 2024; Wu et al., 2024; Held et al., 2025). Nevertheless, there is a lack of research that takes into account all of these factors at once, particularly when it comes to organisations in the public sector.

The purpose of this study is to fill a knowledge vacuum by examining the relationship between digital transformation and digital leadership and knowledge management, with organisational agility and digital culture serving as mediators and moderators, using DGT's digital transformation as a case study. Theoretically, this study should add to the growing body of literature on digital transformation based on dynamic capabilities; practically, it should help DGT fortify the micro-organizational foundations necessary for Coretax's digital transformation to be more successful.

LITERATURE REVIEW

Dynamic Capability Theory

Dynamic capabilities theory was developed to complement the limitations of the Resource-Based View (RBV), which emphasizes resource ownership as a source of competitive advantage (De La Torre & De La Vega, 2025). In dynamic, uncertain, and complex environments, resource ownership alone is not enough; organizations are required to have the ability to continuously integrate, build, and reconfigure internal and external resources to remain adaptive and competitive (Alrub & Sánchez-Cañizares, 2025).

Dynamic capabilities are refers to the overarching set of skills that allow businesses to control how their operational capabilities change over time. At its heart, dynamic capabilities are defined by three processes: sensing, which involves recognising opportunities and threats; seizing, which involves capitalising on opportunities through the deployment of resources and strategic decision-making; and reconfiguring, which involves modifying and rearranging organisational structures, procedures, and routines. Companies can adapt to changing environmental conditions in a timely, effective, and environmentally responsible manner by following these procedures (Ellström et al., 2022).

Digital Transformation

Digital transformation is an essential transformation that transcends the simple incorporation of modern technology. Using digital technology to reimagine business models, processes, organisational structures, and work cultures in a way that fosters innovation, efficiency, effectiveness, and adaptability is what this notion is all about (Abhari, 2025). While there is no single, universally agreed-upon definition, researchers agree that digital transformation is holistic, multidimensional, and contextual. Digital transformation is generally characterized by changes in how organizations create, deliver, and capture value in response to internal pressures and external opportunities triggered by developments in digital technology. This method entails reshaping organisational identity, introducing new business models, and transforming corporate processes through the integration of digital platforms, analytics, cloud computing, and big data (Bresciani et al., 2022).

The capacity of an organisation to integrate digital technology with its microfoundations is viewed as the cause of digital transformation within the framework of dynamic capabilities. Ability to learn, adapt, and innovate continuously is key to digital transformation success. Therefore, digital transformation is not just a technological issue, but also an organizational capability to manage change strategically and in a coordinated manner (AlNuaimi et al., 2022; Alakaş, 2024; Cardoso et al., 2024; Rizana et al., 2025).

Organizational Agility on Digital Transformation

Organizational agility is a crucial determinant for organizations in responding to environmental changes and realizing them through digital transformation. The ability to swiftly react to changes in the market and new technology makes agility a critical component of digital transformation. Being

nimble allows businesses to seize fresh possibilities and lessen the blow of setbacks (Al Maazmi et al., 2024). Organisations that are nimble and adaptable can better take advantage of opportunities as they arise and mitigate risks associated with digital transformation (Mollah et al., 2024).

Digital Leadership on Digital Transformation

Digital leadership is the agent that detects digital changes and trends occurring in the environment, then encourages businesses to adapt agilely to these changes. In other words, digital leadership is closely linked to increased organizational agility and the success of digital transformation (Alakaş, 2024). Several studies have shown that digital leadership is a key driver of successful digital transformation, and the key to developing several crucial basic capabilities in supporting digital transformation such as digital culture, digital talent, and digital business strategy as well as having the ability to respond to changing organizational needs agilely (Rizana et al., 2025).

Knowledge Management on Digital Transformation

Knowledge is a strategic intangible asset that enables digital transformation through the exchange of insights, know-how, and other knowledge practices across organizational units (Binsaeed et al., 2023). In order to achieve digital transformation, an organisation must be able to pool and use its knowledge assets in a way that boosts its responsiveness, innovation, and efficiency. To rephrase, the digital transformation of a company cannot occur without the exchange of information (Hussein et al., 2024), so that knowledge and information needed for successful technology integration can be more widely disseminated (Bux et al., 2025).

Organizational Agility Mediate Digital Leadership on Digital Transformation

The effectiveness of a company's digital transition is greatly affected by digital leadership, either directly or through the medium of organisational agility. Leaders may empower themselves to achieve digital transformation accurately and swiftly by building a culture of agility through digital leadership (Alakaş, 2024). Improving the connection between digital leadership and digital transformation can be achieved through organisational agility (AlNuaimi et al., 2022). Organizations with a strong inventory of dynamic skills, specifically digital leadership, will develop the skills and agility to achieve better digital transformation outcomes (Khattak et al., 2025).

Organizational Agility Mediate Knowledge Management on Digital Transformation

It is crucial for business processes to be agile to be more responsive to digital transformation, supported by knowledge management (Khilji et al., 2024). Knowledge management directly impacts digital transformation and is indirectly mediated by organizational agility. Effective knowledge management implementation will enhance organizational agility, which will indirectly lead to enhanced digital transformation (Khattak et al., 2025).

Digital Culture Moderate Digital Leadership, and Knowledge Management on Organizational Agility

Digital leadership can improve organizational performance and agility by building a strong digital culture within the organization (Mollah et al., 2024). Digital leadership that promotes a digital culture can strengthen its influence on organizational agility. A digital culture can assist digital leadership in facilitating increased organizational agility (Alakaş, 2024).

The presence of this digital culture can facilitate knowledge management to be more agile in responding to changes (Cardoso et al., 2024). Some characteristics of a digital culture include continuously driving disruptive change, communicating smoothly within and outside the organization, collaborating in the creation and delivery of value within the company and with third parties, sharing knowledge and creating a shared identity. When an organization creates all of these, it can respond to change agilely. This is because a digital culture can encourage knowledge and information sharing and organizational agility (Mollah et al., 2024).

Digital Culture Moderate Digital Leadership, and Knowledge Management on Digital Transformation

The correlation between digital transformation and digital leadership is moderated by organisational digital culture (Alakaş, 2024). A crucial moderator, digital culture has a beneficial effect on the correlations between digital adoption and digital drive, and between digital drive and innovation performance. These findings highlight the interconnected nature of digital transformation and how its components work together to generate innovative results (Wang & Zhang, 2025).

A successful digital transformation can be achieved through the interaction between knowledge exchange and employee inventive work behaviour, which is moderated by digital innovation, a type of digital culture (Binsaeed et al., 2023). Culture in the workplace acts as a moderator between knowledge management strategies and bottom-line results.

Digital Culture Moderate Organizational Agility on Digital Transformation

The correlation between digital transformation and organisational agility is moderated by digital culture (Alakaş, 2024). This is due to the fact that adhocracy culture is one aspect of digital culture that can facilitate effective digital transformation, and digital culture as a whole greatly influences the results of digital transformation (Cao et al., 2025). High levels of creativity, adaptability, and change are valued in an adhocracy culture. Because of its adaptability and creativity, adhocracy is always looking for new ways to use technology to its advantage. Consequently, digital transformation can't succeed without highlighting this culture.

Hypothetical Relationships

Hypothetical relationships between variables can be explained in the conceptual framework in Figure 1:

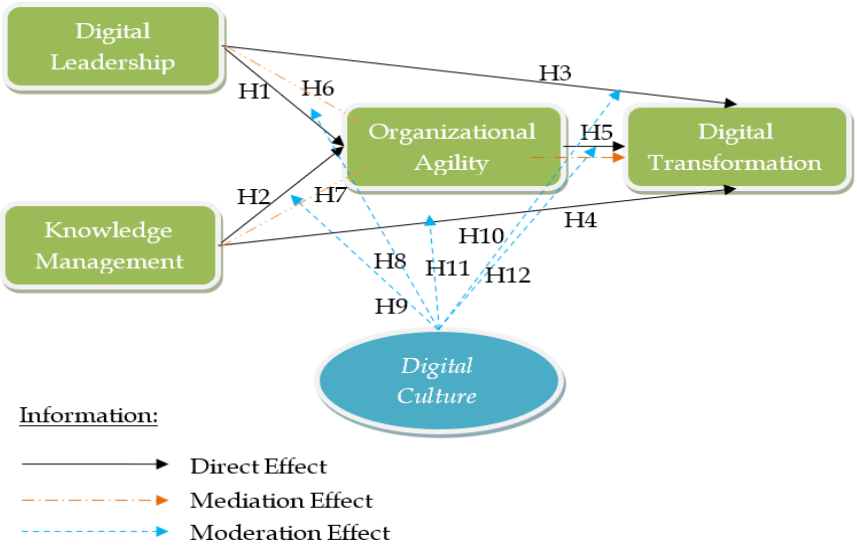

Figure 1. Conceptual Framework

METHODOLOGY

This study uses a quantitative approach with descriptive analysis and Structural Equation Model - Partial Least Square (SEM-PLS) analysis using SmartPLS 4. The sample size used in this study refers to the formula of Hair et al. (2010) has a total of 39 instruments utilised in this investigation. We used dynamic capability theory to analyse data gathered from a poll of 450 DGT employees selected using cluster sampling techniques. Organisational agility and DGT's digital transformation are the foci of this study, which also seeks to establish the moderating effect of digital culture on the link between digital leadership and knowledge management variables and organisational agility.

Digital transformation is measured using 8 indicators adopted and adapted from the research of Kim & Yang (2024). The digital leadership indicators used in this study were adopted and adapted from the research of Rizana et al. (2025) using 8 indicators. The knowledge management indicators used in this study were adopted and adapted from the research of Dedunu et al. (2025) using 7 indicators. Organizational agility is measured using 9 indicators adopted and adapted from the research of Somwethee et al. (2025). Digital culture is measured using 7 indicators adopted and adapted from the research of Cardoso et al. (2024).

RESEARCH RESULTS

Outer Model

The outer model is a first-order test used to assess the validity and reliability of the model. The outer model test uses SmartPLS 4 software, consist of Convergent Validity Test, Discriminant Validity Test, and Reliability Test.

Convergent Validity Test

Convergent validity aims in order to ascertain the reliability of each indicator's connection to its corresponding construct or variable. Figure 2 shows the Average Variance Extracted (AVE) value and the loading factor or outer loading value, which are used to determine convergent validity:

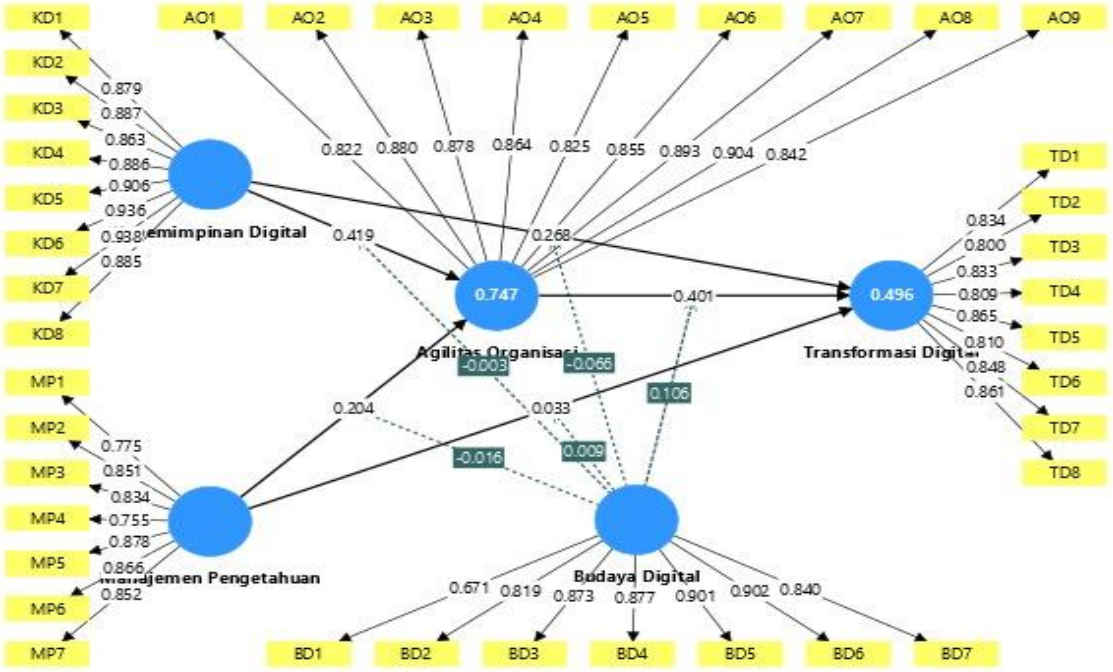

Figure 2. Research Model for Testing Inner and Outer Models

Based on the test model above, the outer loading value for each indicator used is greater than 0.5 so that it meets the convergent validity requirements.

Convergent validity testing was also conducted by examining the Average Variance Extracted (AVE). The results of the AVE test can be seen in Table 2:

Table 2. Average Variance Extracted (AVE) Value

Variable	AVE
Digital Transformation	0,694
Organizational Agility	0,745
Digital Leadership	0,806
Knowledge Management	0,691
Digital Culture	0,712

Source: Primary Data Processed by Researchers (2025)

In Table 2, Each of the tested variables has an AVE value more than 0.5, indicating that they are valid and have fulfilled the convergent validity criteria for this study.

Discriminant Validity Test

Discriminant validity testing uses cross-loading values, when the cross-loading value of an indicator is higher than that of other variables, it is said to have discriminant validity. Results show that the indicator has good discriminant validity, meaning that it is more strongly correlated with its own concept than with other constructs. This confirms that the indicators have all achieved discriminant validity.

Reliability Test

Reliability testing is a tool for measuring the internal consistency of research variables. Reliability can be measured using the Cronbach's Alpha and Composite Reliability. The results of the reliability test are shown in Table 3:

Table 3. Reliability Test Results

Variabel	Cronbach's Alpha	Composite Reliability
Digital Transformation	0,937	0,948
Organizational Agility	0,957	0,963
Digital Leadership	0,966	0,971
Knowledge Management	0,925	0,940
Digital Culture	0,931	0,945

Source: Primary Data Processed by Researchers (2025)

According to Table 3, all of the variables' Cronbach's Alpha and composite reliability scores are higher than 0.7, indicating that the indicators utilised for these variables are consistent and reliable.

Inner Model

The inner model test is used to determine how well the model explains the relationship between variables. The inner model test is determined by the R-square (R^2) and Q-square (Q^2) tests.

R-Square (R^2) Test

The R-Square (R^2) test is an internal SEM-PLS model test to determine the extent to which the external construct may explain the endogenous construct... If you look in Table 4, you can see the R2 test results:

Table 4. Results of R-Square (R^2) Test Analysis

Endogenous Construct	R^2	R^2 Adjusted
Digital Transformation	0,496	0,488
Organizational Agility	0,747	0,744

Source: Primary Data Processed by Researchers (2025)

An R2 value of 0.5 or above was achieved for the endogenous construct variables. This suggests that other variables, not included in this study, contribute less to the explanation of digital transformation and organisational agility than digital leadership, digital culture, knowledge management, and organisational agility.

Q-Square (Q^2) Test

The Q-Square (Q^2) test is used in order to ascertain the degree of significance of the gathered information. To make sure the model matches the data and can forecast new data or data that wasn't used in the original modelling, researchers can apply Q2. The results of the Q^2 test are presented in Table 5:

Table 5. Results of Q-Square (Q^2) Test Analysis

Endogenous Construct	Q^2predict
Digital Transformation	0,432
Organizational Agility	0,736

Source: Primary Data Processed by Researchers (2025)

The Q^2 value for each endogenous construct is close to or more than 0.5, so it can be concluded that organizational agility, digital leadership, knowledge management and digital culture have great relevance in predicting digital transformation and organizational agility.

Hypothesis Test

Hypothesis testing is used to prove or answer the proposed hypothesis. The hypotheses proposed in this study examine the direct effect, mediation, and moderation between exogenous and endogenous variables. The research hypothesis is accepted if the p-value is < 0.05 and the t-statistic is > 1.96 (Hair et al., 2017). The SEM-PLS model for hypothesis testing can be seen in Figure 3:

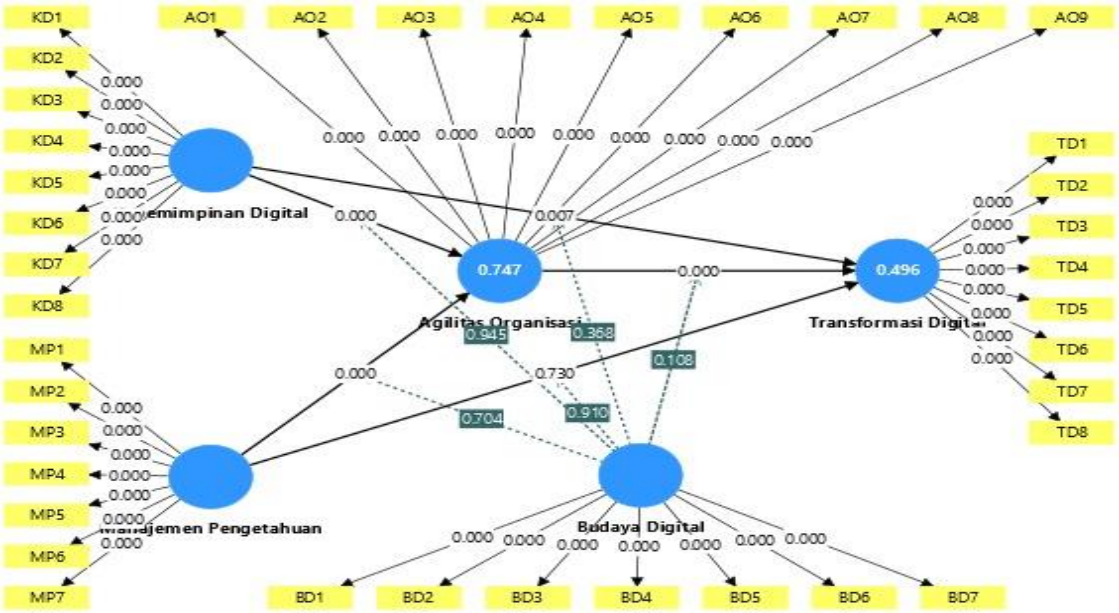

Figure 3. Research Model for Hypothesis Testing

Hypothesis Test of Direct Effect

Hypothesis testing of the direct effect in this study consists of 5 hypotheses which are presented in Table 6:

Table 6. Output Path Coefficient for Direct Effect Testing

	Original Sample (O)	T-Statistics (|O/STDEV|)	P-Values	Conclusion
Digital Leadership -> Organizational Agility	0,419	5,836	0,000	Accepted
Knowledge Management -> Organizational Agility	0,204	3,569	0,000	Accepted
Digital Leadership -> Digital Transformation	0,268	2,680	0,007	Accepted
Knowledge Management -> Digital Transformation	0,033	0,345	0,730	Rejected
Organizational Agility -> Digital Transformation	0,401	4,959	0,000	Accepted

Source: Primary Data Processed by Researchers (2025)

Hypothesis Test of Mediation Effect

The mediation effect hypothesis in this study consists of 2 hypotheses which can be seen from the output of the specific indirect effect as presented in Table 7:

Table 7. Output Specific Indirect Effect Testing of Mediation Effect

	Original Sample (O)	T-Statistics (|O/STDEV|)	P-Values	Conclusion
Digital Leadership -> Organizational Agility -> Digital Transformation	0,168	3,646	0,000	Accepted
Knowledge Management -> Organizational Agility -> Digital Transformation	0,082	2,757	0,006	Accepted

Source: Primary Data Processed by Researchers (2025)

Hypothesis Test of Moderation Effect

The moderation effect hypothesis in this study consists of 5 hypotheses which can be seen from the output of the specific indirect effect as presented in Table 8:

Table 8. Output Specific Indirect Effect Testing of Moderation Effect

	Original Sample (O)	T-Statistics (|O/STDEV|)	P-Values	Conclusion
Digital Culture x Digital Leadership -> Organizational Agility	-0,003	0,069	0,945	Rejected
Digital Culture x Knowledge Management -> Organizational Agility	-0,016	0,379	0,704	Rejected
Digital Culture x Digital Leadership -> Digital Transformation	-0,066	0,901	0,368	Rejected
Digital Culture x Knowledge Management -> Digital Transformation	0,009	0,113	0,910	Rejected
Digital Culture x Organizational Agility -> Digital Transformation	0,106	1,607	0,108	Rejected

Source: Primary Data Processed by Researchers (2025)

DISCUSSION

Digital Leadership Has a Significant Positive Impact on the Agility of DGT

The study found that DGT's agility is positively and significantly affected by digital leadership. A positive regression coefficient of 0.419 and a p-value of 0.000 (<0.05) show that DGT's capacity to adapt and respond rapidly to changes, advancements, and environmental issues is much enhanced by greater digital leadership. According to dynamic capabilities theory, which these results support, organisations need to be able to "sense," "seize," and "reconfigure" in order to keep up with the ever-changing demands of their environments. The

ability to make decisions based on technology, the bravery to innovate, and the adaptability to change are the three pillars upon which digital leadership rests. In addition to seeing digital possibilities and dangers, leaders with digital leadership skills may make the most of the former while minimising the latter.

The results of this study are consistent with the findings of AlNuaimi et al. (2022), and Alakaş (2024), which it became clear that digital leadership and organisational agility are strongly related. According to these research, digital leadership is essential for achieving organisational and personal objectives, encouraging creativity, and bolstering the capacity of organisations to deal with the uncertainty and complexity of the modern workplace. As a result, digital leadership is an important tool for fostering organisational agility and a strategic force behind organisational transformation.

Knowledge Management Has a Significant Positive Impact on the Agility of DGT

According to the study's findings, information management significantly improves DGT's agility. The ability of DGT to respond swiftly and flexibly to changes and challenges in the environment is enhanced when knowledge management is effectively managed and implemented within an organisation, as shown by a positive regression coefficient of 0.204 and a p-value of 0.000 (<0.05). Knowledge is viewed as a crucial strategic asset in developing an organization's capabilities, and our results are in line with this view (dynamic capabilities theory). From this vantage point, capabilities are seen as a set of knowledge management tasks that allow organisations to adapt to changing environments. These tasks include creating, integrating, and applying knowledge. Organisations can improve their capacity to detect change, take advantage of new possibilities, and reorganise resources and processes more adaptively through good knowledge management.

The results of this study are consistent with the findings of Khattak et al. (2025), and Bux et al. (2025), highlighting the importance of knowledge management in making organisations more agile. Knowledge management systems that work allow businesses to adapt faster to changes in the market and new technologies, and they also promote a culture of constant innovation, according to other research (Cheng et al., 2025). Therefore, structured knowledge management practices oriented toward continuous learning can be a key mechanism in strengthening organizational agility and supporting organizational readiness for a dynamic digital environment.

Digital Leadership Has a Significant Positive Impact on the Digital Transformation of DGT

According to the study's findings, digital leadership significantly and positively impacts DGT's digital transformation. The effectiveness of DGT's digital transformation is greatly aided by enhancing the digital leadership of its leaders, as supported by a positive regression coefficient of 0.268 and a p-value of 0.008 (<0.05). These results are in line with the dynamic capacities hypothesis, which states that leaders are crucial for guiding their organisations through the ever-changing digital landscape. To successfully navigate digital possibilities and risks, make strategic decisions to capitalise on chances, and turn them into competitive advantages that last, executives need to be digitally savvy. Therefore, the term "digital transformation" is used to describe a process that is directed by leadership vision and direction, rather than just the adoption of technology.

The results of this study are consistent with the findings of AlNuaimi et al. (2022), Alakaş (2024), and Khattak et al. (2025), proving that digital leadership significantly impacts digital transformation for the better. According to their research, digital leadership is an essential tool for establishing long-term goals, aligning technology with company strategies, and building ecosystems and platforms that facilitate collaboration across different groups of people. Given the complexity and demands placed on public sector organisations today, it is clear that strong digital leadership is essential for digital transformation to be a success.

Knowledge Management Has No Significant Impact on the Digital Transformation of DGT

Based on the study's findings, knowledge management has little to no impact on DGT's digital transformation. A p-value of 0.730 (>0.05) proves that DGT's knowledge management capabilities are not yet a decisive component in the digital transformation success of the company. This discovery is elucidated by dynamic capabilities theory, which states that the effectiveness of digital transformation is dictated by the organization's capacity to adapt its structure, procedures, and decision-making patterns, in addition to the presence of particular capabilities like knowledge management. When it comes to public organisations with strict hierarchies and top-down administration, knowledge management isn't always well-suited to digital transformation requirements, which limits its ability to drive strategic change.

The insignificant influence of knowledge management on digital transformation in this study indicates that knowledge management practices at DGT have not been fully aligned with the digital transformation strategy and agenda. Digital transformation requires fundamental changes not only to processes and systems, but also to organizational structures and collaboration patterns, so that knowledge can be optimally distributed, understood, and utilized by various organizational actors.

This finding is inconsistent with the research of Khattak et al. (2025), discovered that knowledge management significantly impacts digital

transformation in private companies. The public sector is more complicated and regulated, which explains why the results are different. Large, hierarchical organisational structures, stringent laws, restricted staff flexibility, and a propensity for vertical information flow are some of the obstacles that public sector knowledge management must overcome. These factors make it harder for people to share what they know and work together across departments, which undermines knowledge management's ability to propel digital transformation.

Organizational Agility Has a Significant Positive Impact on DGT's Digital Transformation

This study found that DGT's digital transformation is positively and significantly affected by DGT's agility. The success of DGT's digital transformation is greatly enhanced by increased organisational agility, as shown by a positive regression coefficient of 0.401 and a p-value of 0.000 (<0.05). Organisational agility is a dynamic characteristic that allows organisations to adjust effectively and swiftly to changes in their environment. This finding is in line with this notion. Organisational structures, service delivery methods, and business processes are all impacted by digital transformation, which is a type of radical change. Organisational agility is crucial in these situations for surviving and adapting to the digital transformation-related internal and external shocks.

The results of this study are consistent with the findings of Alakaş (2024) and Khattak et al. (2025), which showed that organizational agility has a significant positive effect on digital transformation. Agile organizations tend to demonstrate superior performance across various dimensions of digital transformation due to their high adaptive capacity. Furthermore, the implementation of agile approaches and methodologies has been shown to provide significant benefits in supporting the success of digital transformation projects. AlNuaimi et al. (2022) emphasized that organizational agility enables effective navigation of change throughout the digital transformation process, while less agile organizations face limitations in achieving optimal digital transformation outcomes.

Organizational Agility Has a Significant Positive Impact in Mediating the Relationship between Digital Leadership and Digital Transformation of DGT

The study found that when looking at the connection between digital leadership and DGT's digital transformation, agility played a favourable and significant mediating role. The fact that DGT's digital transformation is improved is supported by a positive regression coefficient of 0.168 and a p-value of 0.001 (<0.05), which show that better digital leadership leads to more organisational agility. In line with dynamic capabilities theory, which highlights the importance of agility as a strategic capability that allows organisations to swiftly adjust to unpredictable and ever-changing business contexts, this finding (Li et al., 2023). In today's digital era, agile and responsive organizations have a greater chance of success, and high agility can only be achieved through digital leadership. Digital leadership emphasizes agility, adaptability, and continuous learning, enabling leaders to navigate change, drive strategic digital transformation, and

capitalize on technological opportunities to create competitive advantage (Schiuma et al., 2022; Hussein et al., 2024).

These findings align with previous research, which shows that digital leadership fosters agility, which in turn enhances the success of digital transformation (Alakaş, 2024; Khattak et al., 2025). Organisations can adapt to new trends, take advantage of digital opportunities, and keep their competitive edge in unpredictable and ever-changing markets when their leaders prioritise digitalisation and employee empowerment (Hussein et al., 2024).

Organizational Agility Has a Significant Positive Impact in Mediating the Relationship between Knowledge Management and Digital Transformation of DGT

The study found that knowledge management and DGT's digital transformation are positively and significantly mediated by DGT's agility (p-value of 0.006 (<0.05) and positive regression coefficient of 0.082). The results of this study point to the fact that digital transformation is driven by increased organisational agility, which is a direct result of well-structured knowledge management. One of the strategic characteristics that allow organisations to swiftly adjust to changing environments and digital disruption is agility, according to dynamic capabilities theory (Ellström et al., 2022). Digital transformation requires structured and persistent dynamic capabilities, supported by the implementation of knowledge management at all levels of management, including training and programs that foster a digital mindset (Cheng et al., 2025).

Effective knowledge management strengthens an organization's dynamic capabilities and builds collaborative networks, which enhances agility and, indirectly, the success of digital transformation. This finding aligns with research by Khattak et al. (2025), which states that knowledge management drives organizational agility, making organizations more adaptable to innovation and digital change. Organizations that demonstrate high agility tend to pursue new knowledge, enhance digital capabilities, and align innovation with technological advances, enabling digital transformation to be more effective and sustainable (Khilji et al., 2024).

Digital Culture Has No Influence in Moderating the Relationship Between Digital Leadership and Agility of DGT

The study found that digital leadership and organisational agility are positively related, with a p-value of 0.940 (>0.05) representing the lack of mediation by digital culture. Thus, digital culture has no effect on DGT's agility, either increasing or decreasing the impact of digital leadership. In light of the adaptive requirements of organisations confronting digital transformation and disruption, digital leadership and digital culture are said to emerge and grow simultaneously according to dynamic capacities theory (Held et al., 2025). Digital leadership acts as a proactive force that drives the development of a digital culture while simultaneously enhancing agility, so that both influence agility simultaneously rather than through a moderating mechanism (Hussein et al.,

2024). Digital culture tends to have a direct causal effect on agility, rather than acting as a variable that modifies the relationship between digital leadership and agility.

This finding differs from Alakaş (2024) research which found a moderating effect of digital culture, but is in line with Cyfert (2025) who stated that digital leadership and digital culture develop together in response to the organization's need to adapt to change.

Digital Culture Has No Influence in Moderating the Relationship Between Knowledge Management and Agility of DGT

The results of the study indicate that digital culture does not moderate the relationship between knowledge management and organizational agility, with p-value of 0.683 (>0.05). This means that the presence of digital culture neither strengthens nor weakens the influence of knowledge management on DGT's agility. According to dynamic capabilities theory, knowledge management is a dynamic capability that involves exploration (the search for new ideas) and exploitation (the utilization of existing knowledge) to build sustainable organizational capabilities (De Aro & Perez, 2021). Digital culture provides the context and tools to support knowledge exploration and exploitation strategies, through continuous learning, collaboration, and experimentation (Cardoso et al., 2024). In other words, digital culture has a direct effect on improving the effectiveness of knowledge management and organizational agility, but does not act as a moderating variable.

This finding aligns with the dynamic capabilities' perspective, which emphasizes that digital culture and knowledge management develop in parallel to support agility, thus their influence is direct causality, not interaction (Mollah et al., 2024). This finding differs from Wu et al. (2024) who stated a moderating effect of digital culture, but aligns with evidence that digital culture creates a conducive environment for knowledge management, which indirectly enhances organizational agility (Cardoso et al., 2024).

Digital Culture Has No Influence in Moderating the Relationship Between Digital Leadership and Digital Transformation of DGT

There was no moderating effect of digital culture on the correlation between digital leadership and DGT's digital transformation, according to the study's findings (p=0.385, >0.05). This indicates that digital culture has no effect on the strength or weakness of digital leadership's ability to drive digital transformation. Organisations undergo digital transformation as a result of their capabilities adapting to an ever-changing environment, as proposed by dynamic capabilities theory (Ellström et al., 2022). Dynamic capabilities act as the initial stimulus that generates change within the organization, including changes in leadership and organizational culture. In this context, digital leadership plays a crucial role in fostering the necessary digital culture, allowing digital leadership and digital culture to work in parallel to build the foundational capabilities for digital transformation (Held et al., 2025). In other words, digital culture emerges as a manifestation of effective digital leadership, not as a moderating variable.

These findings suggest that the relationship between digital leadership and digital transformation is causal or sequential, rather than a moderating interaction. Effective digital leadership can create a digital culture, and both directly and indirectly support the success of digital transformation. This contrasts with the findings of Alakaş (2024) who stated a moderating effect of digital culture, but aligns with the perspectives of Cyfert (2025), and Held et al. (2025) who argued that digital leadership and digital culture develop in parallel and are fundamental to building an organization's dynamic capabilities.

Digital Culture Has No Influence in Moderating the Relationship Between Knowledge Management and Digital Transformation of DGT

The results of the study indicate that digital culture does not moderate the relationship between knowledge management and DGT's digital transformation, with p-value of 0.905 (>0.05). This means that the presence of digital culture neither strengthens nor weakens the influence of knowledge management on digital transformation. According to dynamic capabilities theory, digital culture is seen as an antecedent or enabler of effective knowledge management (De Aro & Perez, 2021). Digital culture creates a conducive environment for knowledge exploration and exploitation through digital technologies, such as wikis, intranets, project management systems, and collaborative platforms, thereby increasing the effectiveness and efficiency of knowledge management. Thus, digital culture and knowledge management work in parallel or integrated ways, rather than as moderating variables, to drive strategic digital transformation outcomes (Cardoso et al., 2024).

Based on these results, it seems that digital culture is directly influencing the connection between digital transformation and knowledge management, rather than just mediating it. To better respond, adapt, and capitalise on changes in digital transformation, an organisation needs a strong digital culture and good knowledge management. These factors work together to build dynamic capabilities. Because of this, the tested model's moderating effect was not statistically significant. While other research has shown that digital culture moderates the link between knowledge management and innovation/digital transformation, our results show the opposite to be true (Binsaeed et al., 2023; Cao et al., 2025).

Digital Culture Has No Influence in Moderating the Relationship Between Organizational Agility and Digital Transformation of DGT

The results of the study indicate that digital culture does not moderate the relationship between organizational agility and DGT's digital transformation, with p-value of 0.120 (>0.05). This means that the presence of digital culture neither strengthens nor weakens the influence of agility on digital transformation. According to dynamic capabilities theory, organizational agility is a core capability that enables organizations to sense, utilize, and transform in a dynamic environment (Zhang et al., 2023). Digital culture is seen as the foundation or direct driver of agility and digital transformation, providing an environment that supports innovation, risk-taking, continuous learning, open

communication, and collaboration (An et al., 2024; Held et al., 2025). Thus, digital culture works in an integrated manner with agility, rather than acting as a variable that alters the strength of the relationship between the two, resulting in a statistically insignificant moderating effect.

These results point to a causative, rather than a moderating, role for digital culture in the connection between digital transformation and agility. Agility and a digital culture work hand in hand to foster organisational dynamic skills, which in turn facilitate digital transformation. This contradicts earlier studies that found digital culture to moderate the association between agility and digital transformation (Alakaş, 2024), but is consistent with the view that digital culture directly supports organizational agility and transformation (Held et al., 2025).

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings, digital leadership significantly improved both organisational agility and DGT's digital transformation, whereas knowledge management primarily impacted organisational agility. In order to improve the connection between digital leadership and knowledge management in regard to digital transformation, organisational agility served as a go-between. Meanwhile, digital culture did not act as a moderating variable, but rather as a supporting element that increased the effectiveness of digital leadership, knowledge management, and organizational agility. These findings confirm that DGT's digital transformation is determined by the organization's core capabilities, while digital culture functions as an enabler that facilitates the creation of these capabilities.

Based on the research results, the following are recommendations for each variable. First, DGT needs to improve the stability of the Coretax system by optimizing infrastructure, designing a more user-friendly interface, and providing a reliable disaster recovery system. It is also important to conduct intensive outreach to taxpayers to improve digital literacy and ease of use of the digital tax system. Second, DGT must ensure effective and transparent communication from leaders to subordinates, create a safe environment for experimenting with new ideas, and provide regular training related to digital technologies (data analytics, big data, machine learning). The organizational structure needs to be more flexible by simplifying inefficient bureaucracy.

DGT leaders need to improve their digital literacy to understand technology trends, undertake massive upskilling and reskilling, and make quick decisions based on real-time data. Leaders must shift from a command-and-control style to facilitators who empower teams and encourage measured risk-taking. Furthermore, DGT needs to develop a centralized knowledge management portal as a repository for easily accessible policies, technical guidance, and research findings. Encourage the formation of expert communities to share tacit knowledge, reward employees who proactively conduct research, and establish a formal mentorship program for senior to junior employees. Finally, DGT must instill a customer-centric culture by actively listening to taxpayer feedback for continuous improvement, encouraging cross-functional collaboration through a centralized platform, and continuously updating

employee digital literacy. It is crucial to build a culture of knowledge sharing with an orientation toward continuous learning and data-driven decision-making.

ADVANCED RESEARCH

It is suggested that future researchers make a number of improvements in light of the study's shortcomings. The first step in understanding what makes digital transformation work is to compare and contrast how different government agencies have handled the transition. Secondly, to facilitate comparisons between employee and leader viewpoints on digital transformation, agility, digital leadership, knowledge management, and digital culture, broaden the pool of respondents to include DGT leaders through qualitative methods like in-depth interviews. Third, because digital transformation is complicated and encompasses many organisational characteristics, it is important to investigate other micro-organizational foundation factors that have not been studied as predictors of digital transformation.

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