

IMPLEMENTATION OF ORGANIZATIONAL AGILITY STRATEGIES TO MEET THE CHALLENGES OF DIGITAL TRANSFORMATION IN GOVERNMENT ORGANIZATIONS

Agung Fachridian

Universitas Esa Unggul, Indonesia

Email: agungfachridian@student.esaunggul.ac.id (Corresponding Author)

Abdul Haeba Ramli

Universitas Esa Unggul, Indonesia

Email: abdul.haeba@esaunggul.ac.id

Lizio Marcel de Araujo

Dili Institute of Technology, Timor Leste

Email: marcallizio@gmail.com

Abstract

Digital transformation has become essential for all organizations as innovation and digital technology continue to evolve. This research focuses on the impact of organizational agility on digital transformation in the government sector, as well as the role of Collaborative Knowledge Creation (CKC), innovation, and Digital Transformational Leadership (DTL) as antecedents and factors that influence organizational agility. Quantitative research using the Structural Equation Model (SEM) method began in 2023. The unit of analysis involved 103 work units in government organizations that focus on the development of science and technology (S&T). The results of this study show that the role of organizational agility can improve digital transformation in the government sector, and the role of innovation and DTL as antecedents and factors, can affect organizational agility. This shows that in driving change towards digital transformation in organizations, the role of organizational agility is very important. This research has managerial implications for government organizations, especially organizational leaders and work unit leaders in building digital transformation. Organizational leaders must realize that implementing sound management strategies fostering organizational agility, including designing adaptive policies, cultivating a responsive organizational culture, and establishing structures that promote collaboration and innovation can facilitate government organizations digital transformation.

Keywords: Collaborative Knowledge Creation; Innovation, Digital Transformational Leadership; Organizational Agility; Digital Transformation

JEL Classification: O15, O32, O38

Article History: Submitted: 2023-12-07; Revision: 2024-06-12; Accepted: 2024-06-25; Published: 2024-07-15

Copyright ©2024 Faculty of Economics and Business, Universitas 17 Agustus 1945 Semarang

This is an open access article under the CC BY license <https://creativecommons.org/licenses/by/4.0>

How to Cite: Fachridian, A., Ramli, A. H., and de Araujo, L. M. (2024). Implementation of Organizational Agility Strategies to Meet The Challenges of Digital Transformation in Government Organizations. *Media Ekonomi dan Manajemen*, 39(2), 215-233.

INTRODUCTION

Digital transformation is a critical concern for organizations, as advancements in digital innovation and technology yield countless possibilities for enhancing existing processes, products, and services (Baiyere *et al.*, 2018). Organizations adopt digital transformation by revolutionizing the way they deliver products and services through the introduction of a digital culture (Chierici *et al.*, 2021). The desire to utilize the potential of digital innovation and proactively steer clear of the challenges of digital disruption are motivating numerous organizations to undertake digital transformation (Frankowska & Rzeczycki, 2020).

When an organization endeavors to transition from manual processes to a full-fledged digital platform, a prosperous leadership strategy is essential for influencing and advancing digital transformation in the long run (Sow & Aborbie, 2018). Leaders who possess transformational leadership skills in the digital context have the capability to communicate a precise vision of digital transformation, guide and inspire employees, and motivate them to adopt and implement digital change within the organization (Musaigwa & Kalitanyi, 2024). Digital transformational leadership (DTL) contributes to comprehending the pace of technological advancements and elevating one's aptitude to manage changes and confront the obstacles of emerging technologies (Kho *et al.*, 2020). The primary features that differentiate digital leaders from conventional leaders are their distinct skills, attitudes, knowledge, and professional experiences (Marcel *et al.*, 2021). Additionally, digital transformational leadership (DTL) can advance the organization's learning orientation, encouraging a greater level of organizational ambidexterity and resulting in organizational agility (Ojha *et al.*, 2018).

Organizational agility plays a crucial role in enhancing digital transformation because it provides efficient task execution and creates new job profiles that support

digitalization (AlNuaimi *et al.*, 2022). Agile organizations are more adaptable to technological and business environment changes, which enables them to plan and execute digital transformation more effectively (Li *et al.*, 2021). By utilizing data analysts, companies can enhance their flexibility in efficiently utilizing data to inform strategic decision-making, detect novel business prospects, and optimize organizational operations (Ghasemaghaei *et al.*, 2017).

The relationship between knowledge creation and organizational agility is widely acknowledged. Agility refers to the ability to effectively manage and apply knowledge to empower organizations against industry turbulence and market dynamics (Nissen & Rennenkampff, 2017). The establishment of Collaborative Knowledge Creation (CKC) is believed to promote organizational learning orientation, leading to an increased level of organizational ambidexterity, thereby improving organizational agility (Ojha *et al.*, 2018). Additionally, CKC facilitates knowledge collation, sharing, and integration among organizations, thereby enhancing their ability to adapt to change and hence, improve organizational agility (Suharto, 2024).

Innovative organizations maintain an agile climate and welcome fresh concepts that enhance their capacity to identify market prospects and launch novel products (Ravichandran, 2018a). They prioritize organizational agility in navigating uncertainty and foster swift risk-taking (Cepeda & Pérez, 2019). Conversely, less innovative organizations display aversion to risk, lack agility, and struggle with devising business strategies effectively (Arsawan *et al.*, 2022). Innovation plays a critical role in enabling organizations to swiftly adapt to shifts in markets, technology, and environmental demands, thus establishing a robust foundation for long-term sustainability and growth of organizational agility (Shahzad *et al.*, 2017).

Many leaders in today's organizations are confronted with significant difficulties when it comes to bridging the divide between strategy and execution within the context of digital transformation. This challenge often translates to expensive blunders for the organization (Ly, 2023). Leaders' implementation of digital technology literacy can impact their organizations' ability to undertake digital transformation (Veisoh *et al.*, 2014; Khoshlahn & Ardabili, 2016; Sasmoko *et al.*, 2019; Lei *et al.*, 2020; Akkaya, 2020; Wanasida *et al.*, 2021; Menon & Suresh, 2021; Tulungen *et al.*, 2022; AlNuaimi *et al.*, 2022; Ly, 2023; Amaliah & Sawitri, 2023). The adoption of DTL fosters organizational agility, as it necessitates leaders to be flexible and receptive to novel concepts (Lin, 2011; Ojha *et al.*, 2018; Akkaya, 2020; AlNuaimi *et al.*, 2022).

Organizational agility can impact the capacity to create digital transformation (Baiyere *et al.*, 2018; Nguyen *et al.*, 2020; AlNuaimi *et al.*, 2022; Ly, 2023; Zhang *et al.*, 2023; Ibrahim & Benchekroun, 2023). Advancing organizational agility calls for innovation and CKC to examine the alterations in the operational environment (Al-Omouh *et al.*, 2020). Innovation plays a crucial role in enhancing organizational agility, according to several studies (Hasoumi *et al.*, 2014; Shahzad *et al.*, 2017; Ravichandran, 2018; Cepeda & Arias, 2019; Teece *et al.*, 2019; Arsawan *et al.*, 2022; Mulyono & Syamsuri, 2023). Therefore, it is imperative to prioritize innovation to make organizations more agile. Exploring organizational changes, the role of CKC with all stakeholders serves as a direct and indirect determinant of organizational agility (Croasdell, 2001; Borgatti & Cross, 2003; Shoshana *et al.*, 2010; Lin, 2011; Madhok & Marques, 2014; Al-Omouh *et al.*, 2020; Perdana *et al.*, 2023).

Previous research has strengthened the theoretical foundation regarding the role of organizational agility in digital transformation in the private sector.

However, there is limited research on the impact of organizational agility on digital transformation in the government sector (Amaliah & Sawitri, 2023). Government sector organizations still face numerous barriers in implementing digital transformation, such as a lack of administrative skills, data availability, resource constraints, and limited technological capabilities (Ferraris *et al.*, 2022). Despite facing these challenges, the implementation of digital transformation technology in government sector organizations yields numerous benefits, such as increased transparency and accountability, improved access to government data, support for innovation, responsive supply chains, and enhanced government services (AlNuaimi *et al.*, 2022; Ferraris *et al.*, 2022; Seepma *et al.*, 2020).

To address this gap, this study investigates the impact of organizational agility on digital transformation in the government sector, as well as the antecedents, CKC, innovation, and DTL, which influence organizational agility.

LITERATURE REVIEW

Digital transformation is a tool to align an organization's culture, business processes, and aspects to cater to the evolving needs of the market (Nasiri *et al.*, 2020). Advanced technology underpins planned changes in digital transformation (Bresciani *et al.*, 2021). Every aspect of human life can experience changes resulting from digital technology in digital transformation (Hai *et al.*, 2021). Implementation in a digital transformation strategy is altering the manner in which digital assets are utilized to attain organizational objectives (Dewi *et al.*, 2022). Digital transformation constitutes an inventive business framework that exploits digital technology to enhance value delivery and augment organizational adaptivity to environmental changes (Mangalaraj *et al.*, 2022). Digital transformation refers to an organizational shift centered around the utilization of cloud

computing, big data analytics, mobile communication technologies, and social media platforms to provide goods and services (AlNuaimi *et al.*, 2022).

Many organizational leaders face significant challenges in managing the disparity between strategy and execution amidst digital transformation, leading to expensive failures for the organization (Ly, 2023). The capacity of a leader to implement Digital Transformation Leadership (DTL) is pivotal to influencing digital transformation (Tulungen *et al.*, 2022; AlNuaimi *et al.*, 2022; Ly, 2023; Amaliah & Sawitri, 2023). DTL is the process of understanding the pace of technological advancements and enhancing one's ability to confront changes and meet emerging challenges (Kho *et al.*, 2020). DTL implementation enhances organizational agility since leaders must be adaptable to innovative concepts and flexible in their approach (Akkaya, 2020; AlNuaimi *et al.*, 2022).

Organizations' agility can influence their ability to achieve digital (Ly, 2023; Zhang *et al.*, 2023; Ibrahim & Benchekroun, 2023). Organizational agility is the capability to swiftly and innovatively respond to unforeseen changes in the business environment, utilizing these changes as opportunities for growth and development (AlNuaimi *et al.*, 2022; Mangalaraj *et al.*, 2022). Employing innovation and knowledge sharing capabilities (CKC) can help explore operational environment changes and achieve organizational agility (Al-Omouh *et al.*, 2020). Therefore, innovation plays a crucial role in enhancing organizational agility and responsiveness, as supported by various studies (Teece *et al.*, 2019; Arsawan *et al.*, 2022; Mulyono & Syamsuri, 2023). To achieve this goal, organizations need to adopt innovative practices and strategies, which can help them keep up with changing market trends and customer demands. In examining organizational change, the role of CKC with all stakeholders - both directly and indirectly - ultimately affects

organizational agility. CKC is a process whereby stakeholders create new knowledge through cooperation and joint creation to develop a better understanding of the environment, gain insights, and respond to organizational changes (Al-Omouh *et al.*, 2020; Zhao *et al.*, 2019). This has been demonstrated by Madhok & Marques (2014), Al-Omouh *et al.*, (2020), and Perdana *et al.* (2023). However, research conducted by Arsawan *et al.*, (2022) indicates that CKC does not affect organizational agility. This is due to differences in the business sector, organizational characteristics, or operational contexts that may influence the relationship between CKC and organizational agility.

The previous study conducted by Al-Omouh *et al.*, (2020); AlNuaimi *et al.*, (2022); Arsawan *et al.*, (2022); Amaliah & Sawitri, (2023); Ly, (2023) measured variables at the level of job classes or specific positions within the company, whereas the development of capabilities and realization of improved organizational agility begin at the level of individual business processes across various departments or units. Therefore, future research on organizational agility models should be conducted across various units or sectors of organizations that are more diverse.

Collaborative Knowledge Creation (CKC) and Organizational Agility

The impact of knowledge capital on organizational agility is widely acknowledged. Organizational agility denotes the capacity to manage and apply knowledge efficiently to strengthen firms against industry instability and market dynamics (Nissen & Rennekampff, 2017). To explore new opportunities in a volatile market, organizational agility necessitates the use of market knowledge and collaboration (Arsawan *et al.*, 2022). Collaborative knowledge creation (CKC) enables organizations to gather, exchange, and assimilate a variety of knowledge that can bolster their capacity to adjust and enhance their organizational agility

(Suharto, 2024). A study conducted by Wang & Hu (2020), Al-Omouh *et al.* (2020), and Perdana *et al.* (2023) demonstrated that CKC has an impact on organizational agility. Meanwhile, the research findings of Arsawan *et al.* (2022) and Y. Wang & Wang, (2023) indicate that CKC does not have an impact on organizational agility. Conversely, research studies conducted by Croasdell (2001), Borgatti & Cross (2003), Shoshana *et al.* (2010), Madhok & Marques (2014), Al-Omouh *et al.* (2020), and Perdana *et al.* (2023) have confirmed that CKC involving all stakeholders is both directly and indirectly a determining factor for organizational agility. Consequently, the following hypothesis can be suggested:

H1. Collaborative Knowledge Creation has a positive effect on Organizational Agility.

Innovation and Organizational Agility

Innovative organizations maintain a receptive atmosphere toward novel concepts that have the potential to shape an organization's capacity to identify opportunities and create new products (Ravichandran, 2018). These organizations prioritize organizational agility in navigating uncertainty and foster swift risk-taking (Cepeda & Pérez, 2019). Conversely, less innovative organizations tend to shy away from risks, lack agility, and suffer in terms of business strategy development (Arsawan *et al.*, 2022). Therefore, innovation impacts organizational agility by enhancing it, as evidenced by previous studies conducted by Shahzad *et al.* (2017), Ravichandran (2018), Cepeda & Arias (2019), Teece *et al.* (2019), Arsawan *et al.* (2022), and Mulyono & Syamsuri (2023). Research by Hasoumi *et al.* (2014) displays a significant correlation between innovation and organizational agility, emphasizing the importance of innovation in creating agility. Therefore, we propose the following hypothesis:

H2. Innovation positively impacts organizational agility.

Digital Transformational Leadership (DTL) and Organizational Agility

Transformational leadership facilitates agility and readiness for potential opportunities and challenges through prompt and suitable action-taking (AlNuaimi *et al.*, 2022). Additionally, digital transformational leadership (DTL) can elevate organizational ambidexterity by enhancing learning orientation, thereby increasing organizational agility (Ojha *et al.*, 2018). Organizational agility involves four essential skills: responsiveness, flexibility, speed, and competence (Akkaya & Tabak, 2020). To achieve this, employees must adjust their actions by implementing suitable information systems, precise instructions, and receiving support from leaders (AlNuaimi *et al.*, 2022). Digital leaders must possess intellectual curiosity, be adaptable to new ideas as well as having a strong desire for continuous learning (Araujo *et al.*, 2021). Lin (2011) research reveals a positive and significant effect of transformational leadership on organizational agility. Likewise, AlNuaimi *et al.* (2022) demonstrate the positive and significant impact of DTL on organizational agility. Accordingly, we propose the hypothesis:

H3. Digital Transformational Leadership has a positive impact on Organizational Agility.

Digital Transformational Leadership (DTL) and Digital Transformation

When an organization endeavors to transition from manual procedures to a comprehensive digital platform, it necessitates a proficient leadership strategy that can have a significant impact in promoting this type of change in the long run (Sow & Aborbie, 2018). Leaders who can implement a digital transformation mindset are commonly known as "digital leaders". These leaders can establish cooperative network organizations and identify digital competencies (Frankowska & Rzczycki, 2020). Leaders with transformational leadership in the digital realm possess the capacity to express a

precise view of digital transformation, inspire and steer employees, and encourage them to accept and execute digital modifications within the organization (Musaigwa & Kalitanyi, 2024). Hence, digital leadership is deemed as a combination of transformational leadership style and digital technology (AlNuaimi *et al.*, 2022).

Existing research indicates that digital transformational leadership (DTL) impacts digital transformation capabilities. These findings have been supported by studies conducted by Veiseh *et al.* (2014), Khoshlahn & Ardabili (2016), Sasmoko *et al.* (2019), Lei *et al.* (2020), Akkaya (2020), Wanasida *et al.* (2021), Menon & Suresh (2021), Tulungen *et al.* (2022), AlNuaimi *et al.* (2022), Ly (2023), and Amaliah & Sawitri (2023). Assuming from the statement above, the following hypothesis is proposed:

H4. Digital Transformational Leadership has a favorable impact on Digital Transformation.

Organizational Agility and Digital Transformation

Organizational agility necessitates proficient knowledge management, learning aptitudes, and accelerated execution of digital transformation in reaction to fluctuating circumstances

(Baiyere *et al.*, 2018). To maintain enabling conditions for adaptation in the business world, organizations must construct a flexible framework with digital transformation, implementation of innovative approaches, and quality employees (AlNuaimi *et al.*, 2022). Agile organizations are better equipped to adapt to technological and business changes, enabling effective planning and execution of digital transformation (Li *et al.*, 2022). However, digital transformation demands agile organizations to tackle challenges that emerge during the change process, upgrade outdated systems with modern digital solutions, and establish accurate data-driven decision-making (Ghasemaghaei *et al.*, 2017).

Previous research has demonstrated that organizational agility positively impacts digital transformation (Baiyere *et al.*, 2018; Nguyen *et al.*, 2020; AlNuaimi *et al.*, 2022; Ly, 2023; Zhang *et al.*, 2023; Ibrahim & Benchekroun, 2023). Based on the above description, we can propose the hypothesis:

H5. Organizational Agility has a positive effect on Digital Transformation.

The conceptual framework can be shown at Figure 1.

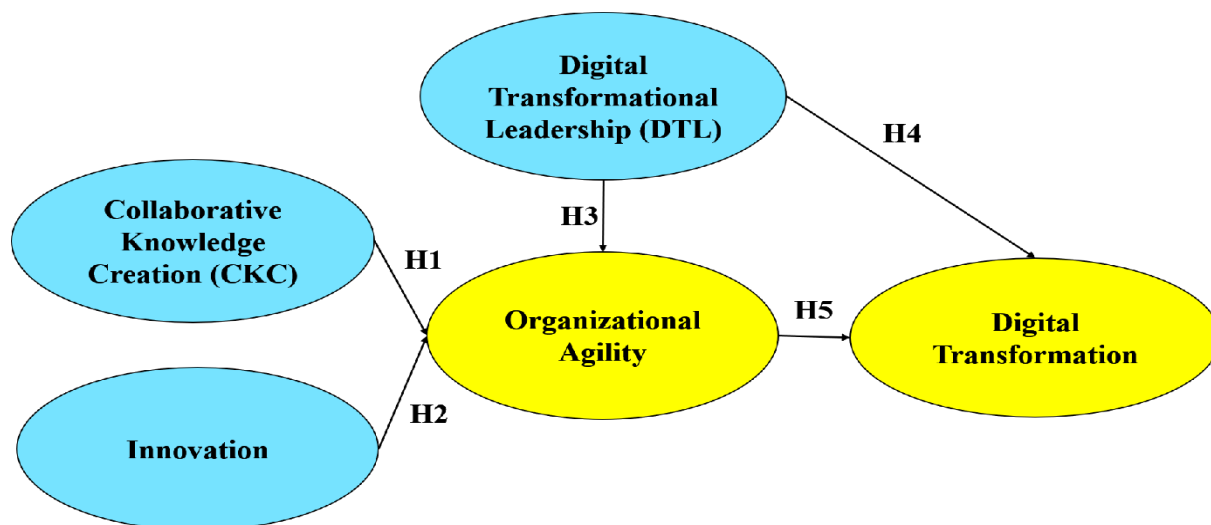


Figure 1. Conceptual Framework

RESEARCH METHODS

Participants and Procedure

This study was conducted from May to September 2023, with a sample population consisting of active civil servants employed at the National Research and Innovation Agency. The sample criteria included individuals serving as Head of Work Unit under Eselon I, II, or III, Head of Section or Coordinator within the Work Unit, as well as members of the Bureaucracy Reform and Agent of Change Team (AoC). The data collection process commenced with distributing a pre-test questionnaire to 50 respondents. This study employed a quantitative methodology utilizing the Structural Equation Model (SEM) technique. Data processing and analysis were conducted through IBM SPSS 25 and Lisrel 8.8 software. To examine reliability and validity, researchers executed a factor analysis with SPSS 25 during the pre-test stage. In line with the SEM (Structural Equation Model) method, the sample size for this research should be at least five times the number of questions (Hair *et al.*, 2014). Thus, the sample size for this study includes 237 individuals, accounting for backup respondents to mitigate potential discrepancies in survey completion.

Measures

The study data was collected via an online survey utilizing the Google Forms platform. The Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree) was used to quantify variables and allow respondents to make specific selections. Measurement of the Collaborative Knowledge Creation (CKC) variable comprises 8 statements adopted from Al-Omouh *et al.* (2020), while the innovation variable is composed of 10 statements adopted from Arsawan *et al.* (2022). For measuring Digital Transformational Leadership (DTL), three variables were adopted from AlNuaimi *et al.* (2022) DTL consists of six statements, the organizational agility variable consists

of six statements, and the digital transformation variable consists of five statements. These variables collectively use 35 statements in total.

Data Analysis

The validity of the factor analysis was determined based on the Kaiser-Meyer-Olkin (KMO) and Measure of Sampling Adequacy (MSA) values. Results indicate that the range of KMO values (0.579 to 0.810) and MSA (0.506 to 0.920) surpasses the minimum threshold of 0.500, thus confirming suitability for the analysis. Moreover, reliability was assessed through Cronbach's Alpha measurement method. The values ranged from 0.764 to 0.939, which is close to 1 and reflects a high level of reliability (Hair *et al.*, 2014). All 34 questions included operational definitions of the variables and were part of a pre-test conducted for this study. The organizational agility variable consisted of six questions, though one was removed due to its inconsistency with the industry and respondents of this study. Meanwhile, out of the five questions in the DTL variable, only four were deemed valid, while all questions for the other variables were considered valid. A total of 33 questions have been deemed suitable for use in this research survey.

RESULT AND DISCUSSION

Descriptive Statistics and Result

The test results revealed that 103 out of 149 analysis units, representing work units, were obtained from respondents, comprising 69.13% of all work units in the organization. The State Property Management and Procurement Bureau, the Directorate of Technology Transfer and Audit Systems, and the Hydrodynamics Research Center had the most respondents, each accounting for 2.11% of the total sample size. The Work Unit's role is divided among different teams, with the Head of the Work Unit representing 27% of the total research sample, followed by the members of the Bureaucracy Reform at

29%, the Agent of Change Team (AoC) at 38%, and the remaining 6% serving as Sub Coordinators/Coordinators.

Based on the guidelines recommended by Hair *et al.* (2014), the measurement's construct validity is sufficient and has been validated as most indicators in each variable possess a loading factor greater than 0.500. There are no indicators with a loading factor below 0.500 (Figure 2). In addition, the calculation of Construct Reliability (CR) and Average Variance Extracted (AVE) meets the overall requirements outlined in Hair *et al.* (2014) guidelines. These guidelines suggest that the construct reliability value should attain an adequate degree of reliability, with a CR above 0.700 and an AVE value above 0.500. The validity and reliability measurements indicate that the Collaborative

Knowledge Creation (CKC) factor possesses a CR value of 0.894 and a VE of 0.516. Innovation (INV) has a CR of 0.916 and a VE of 0.526, Digital Transformational Leadership (DTL) has a CR of 0.885 and a VE of 0.564, Organizational Agility (OA) has a CR of 0.843 and a VE of 0.520, while Digital Transformation (DT) has a CR of 0.871 and a VE of 0.628 .

Based on the fit test analysis, most of the indicators demonstrated a good fit, including the P-Value of 0.622, 471 degrees of freedom, Chi Square of 460.84, RMSEA of 0.00, ECVI of 2.758, AIC of 640.838, CAIC of 1,042.964, NFI of 0.973, Critical N of 280.269, and GFI of 0.820. Overall, the model exhibits an acceptable level of goodness of fit, although there are marginal levels of fit identified (Figure 2).

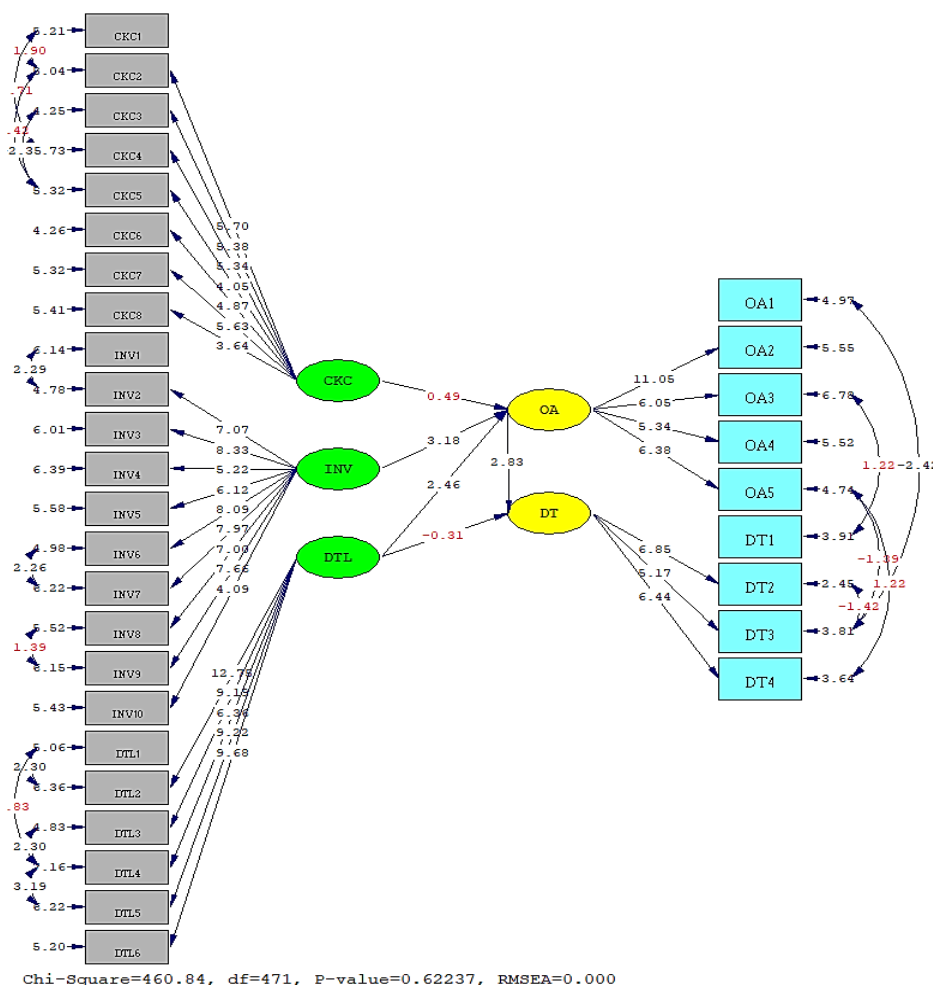


Figure 2. Result Path Diagram T-Value

Table 1. Hypothesis Testing Results

Hypothesis	Statement Hypothesis	T-Value	P-Value	Path Coefficient	Description	R-Square
H1	Collaborative Knowledge Creation has a positive effect on Organizational Agility	0.495	0.002	0.056	Data does not support the hypothesis	0.301
H2	Innovation has a positive effect on Organizational Agility	3.178	0.002	0.468	Data supports the hypothesis	0.598
H3	Digital Transformational Leadership has a positive effect on Organizational Agility	2.460	0.001	0.370	Data supports the hypothesis	0.602
H4	Digital Transformational Leadership has a positive effect on Digital Transformation	-0.309	0.001	-0.028	Data does not support the hypothesis	0.066
H5	Organizational Agility has a positive effect on Digital Transformation	2.828	0.001	0.311	Data supports the hypothesis	0.145

Table 2. Structural Equation Modeling (SEM)

No	Structural Equation Modeling	R-Square	Magnitude Of Influence (%)	PGFI (>0.6)	ECVI Default Model	ECVI Saturated	Goodness of Fit (GoF)
1	CKC, INV, DTL → OA	0.661	66.1%				
2	OA, DTL → DT	0.125	12.5%	0.688	2.758	4.754	Good Fit
3	CKC, INV, DTL, OA → DT	0.077	7.7%				

Based on the hypothesis testing Table 1, it is evident that all hypotheses have P-Values below 0.05 (≤ 0.05), indicating that the research results are statistically significant. However, in the constructed research model, only H2, H3, and H5 have T-Values above 1.96 (≥ 1.96), where the data supports the constructed hypotheses,

thus H2, H3, and H5 are accepted. Conversely, H1 and H4 have T-Values below 1.96, meaning the data does not support the hypotheses, and these hypotheses are rejected. Additionally, the Path Coefficient values for H2, H3, and H5 are positive, indicating that the effects arising from the relationships between the

independent variables are positive. In this study, organizational agility also cannot mediate the relationship between DTL and digital transformation. The R-Square² (R²) value for H2 is 0.598, indicating that the influence of innovation on organizational agility is 59.8%, while the influence of DTL on organizational agility is 60.2%, and the influence of organizational agility on digital transformation is 14.5%.

In the first model equation, Structural Equations with an R-Square² (R²) value of 0.661 indicate that the variation from CKC, innovation, and DTL affects organizational agility by 66.1%. The second model equation, with an R² value of 0.125, indicates that the variation from organizational agility and DTL affects digital transformation by 12.5%. The third model equation, with an R² value of 0.077, indicates that the variation from CKC, Innovation, and DTL as antecedents of organizational agility affects digital transformation by 7.7%. The Parsimonious Goodness of Fit Index (PGFI) value is 0.688, which is greater than 0.6 (≥ 0.6), indicating a good model fit. Additionally, the ECVI Default Model value is lower than the ECVI Saturated value, leading to the conclusion that the model is fit (see Table 2).

Discussion

The study aims to examine the impact of organizational agility on digital transformation in the government sector, including CKC, innovation, and DTL as antecedents and influencing factors of organizational agility. Collaborative Knowledge Creation (CKC), innovation, and Digital Transformational Leadership (DTL) are independent variables, while organizational agility and digital transformation are dependent variables, as shown in Figures 1 and 2.

Contrary to the expectations of this study, the role of Collaborative Knowledge Creation (CKC) did not influence Organizational Agility (H1). This finding aligns with research by Arsawan *et al.*, (2022) and Y. Wang & Wang, (2023).

Arsawan *et al.*, (2022) demonstrated that strong internal competition can hinder collaboration, as individuals focus more on competition than on collaboration, rendering CKC ineffective in enhancing organizational agility. Similarly, Y. Wang & Wang, (2023) found that CKC processes can become overly bureaucratic and slow, impeding the quick response and adaptation necessary for organizational agility. Additionally, Wang's study indicated that while knowledge sharing is generally beneficial, it can sometimes lead to knowledge hoarding, information overload, and increased bureaucracy.

These findings resonate with previous studies showing that CKC does not significantly impact organizational agility in the public sector. In governmental institutions, several factors play crucial roles. Firstly, high internal competition can prompt employees to withhold knowledge for personal gain, inhibiting CKC effectiveness. Secondly, rigid bureaucracy and complex procedures can lead to information bottlenecks and slow decision-making processes, reducing the organization's ability to adapt swiftly to changes. These negative effects can slow down decision-making and diminish the organization's responsiveness. Therefore, although CKC has the potential to enhance organizational agility, internal factors such as competition and bureaucracy in governmental institutions can severely hinder its implementation and effectiveness. Governmental institutions need to consider strategies to mitigate these barriers, such as fostering a collaborative culture and reducing bureaucratic procedures to maximize the benefits of CKC.

Testing additional hypotheses, the findings indicate that innovation's impact on organizational agility is positive and significant (H2). This is consistent with prior research by Hasoumi *et al.* (2014), which highlights a significant connection between innovation and organizational agility and underlines the critical role of innovation in enhancing organizational agility. Thus, this research aligns with

previous studies done by Hasoumi *et al.* (2014), Ravichandran (2018), Cepeda & Arias (2019), Teece *et al.* (2019), Al-Omouh *et al.* (2020), and Arsawan *et al.* (2022) that investigated the impact of innovation on organizational agility and its ability to enhance organizational agility. Innovative approaches allow organizations to respond to environmental changes with greater responsiveness and adaptability. This increases their explorative capabilities, enabling them to capture new opportunities and rapidly adjust to emerging challenges. Well-implemented innovation not only leads to small improvements, but also fosters breakthroughs, inspires new trends, and enables profound changes in various scientific fields. Innovation creates not only superior products or services, but also a dynamic culture surrounding them over time. For companies operating in the field of science and technology, innovation is not just a strategic option, but a necessity if they want to survive and flourish in an ever-changing environment. Thus, companies that allocate resources to cultivate a robust culture of innovation will possess a competitive advantage in maintaining their nimbleness.

Digital Transformational Leadership (DTL) positively impacts Organizational Agility (H3), as supported by Ojha *et al.* (2018) perspective. DTL can enhance organizational learning orientation, resulting in increased organizational ambidexterity and improved organizational agility. This research aligns with previous studies by Lin (2011) that demonstrated the positive and significant effect of transformational leadership on organizational agility, as well as research by AlNuaimi *et al.* (2022), and Ly (2023) that shows the positive and significant effect of DTL on organizational agility. DTL encourages employees and leaders to be innovative, use technology, and explore new opportunities. DTL leaders effectively communicate a transformational vision that inspires team members to engage actively in the change process. They foster

continuous learning throughout the organization, encourage collaboration across departments, and eliminate silos that hinder change. In this way, DTLs help organizations to achieve a higher level of ambidexterity, the ability to simultaneously execute resource exploration and exploitation, which is key to organizational agility.

Digital transformational leadership (DTL) does not have a significant impact on digital transformation (H4). Research conducted by Musaigwa & Kalitanyi, (2024) identified three main factors that hinder digital transformational leadership in influencing digital transformation within organizations. Firstly, resistance to change within the organizational culture emerges as a primary barrier. Secondly, technological infrastructure limitations impede the organization's ability to adopt digital innovations. Thirdly, the mismatch between the culture and values of the organization and digital initiatives hinders the acceptance and implementation of necessary changes.

In the context of government institutions, the obstacles to implementing digital transformational leadership are more complex. Firstly, resistance to change within the organizational culture is a significant challenge. Government agencies are often characterized by a stable and rigid bureaucratic culture, where procedures and hierarchies have become integral to day-to-day operations. In such an environment, efforts towards digital transformation requiring rapid adaptation and flexibility may provoke significant resistance or discomfort among employees accustomed to established ways of working. Secondly, limitations in technology infrastructure present a significant challenge. Government entities may encounter budget constraints and complex procurement processes, making it challenging to adopt new technologies in an efficient manner. Additionally, existing technology infrastructure may not be adequate to meet the needs of a fast-paced and dynamic digital transformation.

Thirdly, a discrepancy between the organizational culture and values and digital initiatives can create further obstacles. The traditional values and bureaucratic culture, which may prioritize stability and adherence to certain procedures, may conflict with the philosophy of digital transformation, which emphasizes innovation, flexibility, and responsiveness to change. Consequently, government institutions may encounter difficulties in adopting new practices and technologies that are necessary to enhance efficiency and service quality. Therefore, digital transformation efforts in government institutions require a carefully considered strategy, strong commitment from leadership, and collaborative efforts from all members of the organization to overcome these barriers and achieve the necessary changes in this digital era.

Organizational agility has a positive impact on digital transformation (H5), as per Li *et al.* (2022) perspective. Agile organizations can adapt more easily to technological advancements and changes in the business environment. This, in turn, enables them to plan and carry out digital transformation more efficiently. Furthermore, the process of digital transformation has facilitated organizational agility due to the emergence of novel job roles that effectively enhance the productivity and efficiency of task execution (AlNuaimi *et al.*, 2022). In accordance with prior investigations by Li *et al.* (2021), AlNuaimi *et al.* (2022), Ly (2023) and Ibrahim & Benchekroun, (2023), this study supports the notion that digitalization fosters enhanced operational flexibility and adaptability. Organizations that possess nimbleness and agility to respond swiftly to technological advancements and business dynamics are better positioned to capitalize on digital transformation prospects. Their rapid adaptability allows them to explore technological innovations and implement digital solutions with greater ease. Agile organizations typically cultivate a culture that embraces change, fostering creative, collaborative, and

innovative thinking in response to digital transformation challenges. Thus, organizational agility plays a pivotal role in guaranteeing success and sustainability against the backdrop of rapid change in an ever more digitally interconnected business landscape.

The study's findings indicate that the government sector's digital transformation could benefit from improving organizational agility, which can be influenced by innovation and DTL as antecedents and factors. While the impact of CKC on organizational agility was deemed insignificant by this study, its relationship to innovation and DTL can account for 66.1% of the variation observed in organizational agility. However, DTL's role does not affect digital transformation. Its role, together with organizational agility, can influence and explain 12.5% of the variation in digital transformation. This study exemplifies that organizational agility, which is shaped by innovation and DTL, provides a solid basis for successful digital transformation in government organizations. Organizational agility is crucial in the midst of the fast-paced and ever-changing technological landscape, as government agencies are continually presented with shifting demands and requirements. Developing a solid basis of agility through innovative strategies and digital transformation leaders allows government organizations to better adapt to the rapid changes in this technological era.

It is of paramount importance for organizations to reinforce the framework and infrastructure that facilitate collaboration and innovation. This may entail the development of information systems that facilitate access and exchange of information, as well as the establishment of cross-functional teams dedicated to the management of innovation initiatives. Furthermore, leaders must assume an active role in promoting a culture that supports experimentation and controlled risk-taking. Digital Transformational Leadership (DTL) should encourage employees to try new things and provide

space for learning from failures. Finally, organizations must consider integrating new technologies, such as artificial intelligence and data analytics, as tools to enhance the effectiveness of CKC, innovation, and digital transformational leadership. By adopting this holistic approach, organizations can create an ecosystem that supports agility and the adaptive capabilities needed to tackle the challenges of digital transformation.

CONCLUSION AND RECOMMENDATION

This study confirms the proposed hypothesis, demonstrating a robust correlation between innovation and variables of Digital Transformational Leadership (DTL) and organizational agility. The findings further highlight a noteworthy relationship between variables of organizational agility and digital transformation. This study demonstrates that organizational agility can enhance digital transformation in the government sector, while innovation and DTL play a role as antecedents and factors that affect organizational agility. Surprisingly, the study uncovered results that did not align with the initial expectations. In this instance, it is surprising to find that there is no significant relationship between the Collaborative Knowledge Creation (CKC) variable and Organizational Agility. This implies that CKC has a potential role in developing collaborative knowledge, but its impact on organizational agility in the context of this research is apparently restricted or insignificant. Additionally, this research revealed that the DTL variable did not have a noteworthy correlation with digital transformation. This outcome may not align with prior research, as it is anticipated that leadership concentrated on digital transformation will have a favorable impact on the digital transformation endeavors within organizations. Thus, these results enhance comprehension of the intricate relationship among variables examined within the digital

transformation framework and underscore the significance of additional investigation to comprehend the factors that could impact these variables in diverse organizational contexts.

The study has valuable insights for future research. However, caution should be exercised when generalizing the findings to other organizations, as the study is limited to one government organization. To enhance the study, future research can expand to the public sector or government organizations within a broader region. This research enables identification of variations and similarities in the association among these variables across multiple organizational contexts, comprising the public sector with its unique characteristics and challenges concerning digital transformation.

Second, further development of the model or framework in this study is necessary to enable testing of different frameworks by incorporating mediating variables between organizational agility and digital transformation. For example, digital culture, as researched by AlNuaimi *et al.* (2022), or digital strategy, as proven to guide mediating relationships between organizational agility and digital transformation in sector Amaliah & Sawitri (2023), could be added as mediating variables.

Additional variables for future research frameworks include organizational culture, policies, competencies, and leadership styles. These variables can further determine organizational agility and digital transformation. Furthermore, the demographics of employees should be considered for further analysis and comparisons. This study holds significant managerial implications for government organizations, particularly for work unit leaders and organizational leaders in cultivating digital transformation.

Firstly, developing a flexible organizational structure is identified as a crucial factor in establishing an environment that supports digital transformation. Organizational leaders must recognize the signifi-

cance of an agile and adaptable organization in swiftly adapting to evolving technology and global dynamics for digital transformation success. It is imperative to implement management strategies supporting agility, including designing adaptive policies, fostering a responsive organizational culture, and creating collaborative and innovative organizational structures.

Secondly, the findings of this study underscore the significance of digital transformation driving leaders. Within organizations, leaders must have a profound comprehension of the obstacles and possibilities that come with digital change. They ought to be catalysts for change, spurring and galvanizing staffers to embrace new technologies, more efficient workflows, and pertinent innovations. Leaders should also facilitate open communication, support collaborative efforts, and create an environment where employees feel safe to try new things.

Third, it is crucial to cultivate and develop DTL (digital transformational leadership) leaders within government organizations through investment in human resources (HR) and a talent management approach. By managing coaching, education, and training effectively, organizations can create digital leaders that meet the specific needs of the organization. Prioritizing the management of key talent can ensure that individuals with exceptional skills and potential fill strategic roles and responsibilities. Through talent management, organizations can also build strong teams, improve key employee retention, and prepare future digital leaders.

Fourth, to enhance the role of CKC, organizations should establish and integrate digital-based CKC, with a particular emphasis on constructing a Knowledge Management System. This System serves as a fundamental cornerstone to optimize collaborative procedures for generating and distributing knowledge in the digital age. Organizational leaders should prioritize investing in technology that maintains

accessibility, promotes efficient information exchange, and integrates knowledge resources. Digitally collaborative tools and platforms can facilitate effective communication among organizational members while overcoming obstacles such as a lack of common understanding and barriers to information sharing. Additionally, it is imperative to constantly update the management of the Knowledge Management System to align with technological advancements, enabling the organization to benefit from cutting-edge techniques that support the role of CKC. This approach creates an environment for leaders to promote creativity, collaboration, and digital knowledge sharing to enhance the efficiency of CKC as a pivotal aspect of organizational strategy.

Fifth, this study suggests that investing in innovative policy development can significantly enhance organizational agility and enable digital transformation in government settings. To this end, organizational leaders should identify and implement policies that support digital research and development, encourage cross-sector collaborations, and foster an environment conducive to innovation. Taking an open approach to new ideas and forming partnerships with the private sector, research institutions, and civil society can establish a platform for exchanging knowledge and creating innovative solutions. Furthermore, it is important to provide sufficient financial support for innovative projects and enhance organizations' ability to manage innovation risks to achieve the beneficial impact of innovation on digital transformation and organizational agility.

REFERENCES

- Akkaya, B., & Tabak, A. (2020). The Link Between Organizational Agility and Leadership: A Research in Science Parks. *Academy of Strategic Management Journal*, 19(1), 1–17. <https://www.researchgate.net/publication/339784182>

- AlNuaimi, B. K., Singh, K. S., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering Digital Transformation: The Nexus Between Leadership, Agility, and Digital Strategy. *Journal of Business Research*, 145, 636–648. <https://doi.org/10.1016/j.jbusres.2022.03.038>
- Al-Omoush, K. S., Simón-Moya, V., & Sendra-García, J. (2020). The Impact of Social Capital and Collaborative Knowledge Creation on E-Business Proactiveness and Organizational Agility in Responding to the Covid-19 Crisis. *Journal of Innovation and Knowledge*, 5(4), 279–288. <https://doi.org/10.1016/j.jik.2020.10.002>
- Altschuller, S., Gelb, D. S., & Henry, T. F. (2010). Part of the Management Information Systems Commons Recommended Citation Recommended Citation Altschuller. *Journal of International Technology and Information Management*, 19(1), 38–60. <https://scholarworks.lib.csusb.edu/jitimAvailableat:https://scholarworks.lib.csusb.edu/jitim/vol19/iss1/1>
- Amaliah, R. D., & Sawitri, H. S. R. (2023). Digital Transformation in the Public Sector: The Role of Leadership and Culture (A Study of Civil Servants in the Statistics Indonesia). *International Journal of Economics, Business and Management Research*, 7(6), 263–276. <https://doi.org/10.51505/ijebmr.2023.7617>
- Araujo, L. M. de, Priadana, S., Paramarta, V., & Sunarsi, D. (2021). Digital Leadership in Business Organizations: An Overview. *International Journal of Educational Administration, Management, and Leadership*, 2(1), 45–56.
- Arsawan, I. W. E., Hariyanti, N. K. D., Atmaja, I. M. A. D. S., Suhartanto, D., & Koval, V. (2022). Developing Organizational Agility in SMEs: An Investigation of Innovation's Roles and Strategic Flexibility. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 1–17. <https://doi.org/10.3390/joitmc8030149>
- Baiyere, A., Tapanainen, T., & Salmela, H. (2018). Agility of Business Processes: Lessons from a Digital Transformation Context. *Mediterranean Conference on Information Systems (MCIS)*, 1–13. <https://aisel.aisnet.org/mcis2018/1>
- Borgatti, S. P., & Cross, R. (2003). A Relational View of Information Seeking and Learning in Social Networks. *Management Science*, 49(4), 432–445. <https://doi.org/10.1287/mnsc.49.4.432.14428>
- Bresciani, S., Ferraris, A., Romano, M., & Santoro, G. (2021). Digital Leadership. In *Digital Transformation Management for Agile Organizations: A Compass to Sail the Digital World* (pp. 97–115). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80043-171-320211006>
- Cepeda, J., & Arias-Pérez, J. (2019a). Information technology capabilities and organizational agility. *Multinational Business Review*, 27(2), 198–216. <https://doi.org/10.1108/MBR-11-2017-0088>
- Cepeda, J., & Arias-Pérez, J. (2019b). Information Technology Capabilities and Organizational Agility: The Mediating Effects of Open Innovation Capabilities. *Multinational Business Review*, 27(2), 198–216. <https://doi.org/10.1108/MBR-11-2017-0088>
- Chierici, R., Tortora, D., Giudice, M. Del, & Quacquarelli, B. (2021). Strengthening Digital Collaboration to Enhance Social Innovation Capital: An Analysis of Italian Small Innovative Enterprises. *Journal of Intellectual Capital*, 22(3), 610–632. <https://doi.org/10.1108/JIC-02-2020-0058>

- Croasdell, D. T. (2001). It's Role in Organizational Memory and Learning. *Information Systems Management*, 18(1), 8–11. <https://doi.org/10.1201/1078/43194.1>
8.1.20010101/31260.2
- Dewi, M. P., Havidz, I. L. H., Atmaja, D. R., & Firmansyah, B. Y. (2022). Digital Marketing for SMEs Cidokom Village Plant Cultivation Group. *Majalah Ilmiah Bijak*, 19(1), 47–55. <http://ojs.stiami.ac.id>
- Ferraris, A., Degbey, W. Y., Singh, S. K., Bresciani, S., Castellano, S., Fiano, F., & Couturier, J. (2022). Microfoundations of Strategic Agility in Emerging Markets: Empirical Evidence of Italian MNEs in India. *Journal of World Business*, 57(2), 1–17. <https://doi.org/10.1016/j.jwb.2021.10>
1272
- Frankowska, M., & Rzeczycki, A. (2020). Reshaping Supply Chain Collaboration - The Role of Digital Leadership in a Networked Organization. In L. M. Camarinha-Matos, H. Afsarmanesh, & A. Ortiz (Eds.), *Boosting Collaborative Networks 4.0* (pp. 353–364). Springer International Publishing.
- Ghasemaghahi, M., Hassanein, K., & Turel, O. (2017). Increasing Firm Agility Through the Use of Data Analytics: The Role of Fit. *Decision Support Systems*, 101, 95–105. <https://doi.org/https://doi.org/10.1016/j.dss.2017.06.004>
- Hai, T. N., Van, Q. N., & Tuyet, M. N. T. (2021). Digital Transformation: Opportunities and Challenges for Leaders in Emerging Countries in Response to Covid-19 Pandemic. *Emerging Science Journal*, 5, 21–36. <https://doi.org/10.28991/esj-2021-SPER-03>
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial Least Squares Structural Equation Modeling (PLS-SEM): An Emerging Tool in Business Research. In *European Business Review* (Vol. 26, Issue 2, pp. 106–121). Emerald Group Publishing Ltd. <https://doi.org/10.1108/EBR-10-2013-0128>
- Hasoumi, F., Yarmohammadian, M. H., & Fadavi, M. (2014). Relationship Innovation With Organizational Agility Among Employees: Case Study: Islamic Azad University of Khorasgan (Isfahan). *Singaporean Journal of Business, Economics and Management Studies*, 2(12), 178–188. <https://doi.org/10.12816/0006810>
- Ibrahimi, G., & Benchekroun, B. (2023). The Contribution of Agility to an Organization's Digital Transformation. *TEM Journal*, 12(4), 2361–2369. <https://doi.org/10.18421/TEM124-48>
- Kho, A., Djati, S. P., Bernarto, I., Niko, S., Yulianeu, A., Nanda, H. A., & Nanda, K. A. (2020). The Relationship Between Digital Transformational Leadership Styles and Knowledge-Based Empowering Interaction for Increasing Organisational Innovativeness. *International Journal of Innovation, Creativity and Change*, 11(3), 259–277. www.ijicc.net
- Khoshlahn, M., & Ardabili, F. S. (2016). The Role of Organizational Agility and Transformational Leadership in Service Recovery Prediction. *Procedia - Social and Behavioral Sciences*, 230, 142–149. <https://doi.org/10.1016/j.sbspro.2016.09.018>
- Lei, H., Leungkhamma, L., & Le, P. B. (2020). How Transformational Leadership Facilitates Innovation Capability: The Mediating Role of Employees' Psychological Capital. *Leadership & Organization Development Journal*, 41(4), 481–499. <https://doi.org/10.1108/LODJ-06-2019-0245>
- Li, H., Hu, Q., Zhao, G., & Li, B. (2022). The Co-Evolution of Knowledge Management and Business Model Transformation in the Post Covid-19

- Era: Insights Based on Chinese E-Commerce Companies. *Journal of Knowledge Management*, 26(5), 1113–1123.
<https://doi.org/10.1108/JKM-03-2021-0177>
- Li, H., Wu, Y., Cao, D., & Wang, Y. (2021). Organizational Mindfulness Towards Digital Transformation as a Prerequisite of Information Processing Capability to Achieve Market Agility. *Journal of Business Research*, 122, 700–712.
<https://doi.org/10.1016/j.jbusres.2019.10.036>
- Lin, W.-B. (2011). Factors Affecting the Effects of Service Recovery From an Integrated Point of View. *Total Quality Management and Business Excellence*, 22(4), 443–459.
<https://doi.org/10.1080/14783363.2010.545553>
- Ly, B. (2023). The Interplay of Digital Transformational Leadership, Organizational Agility, and Digital Transformation. *Journal of the Knowledge Economy*.
<https://doi.org/10.1007/s13132-023-01377-8>
- Madhok, A., & Marques, R. (2014). Towards an Action-Based Perspective on Firm Competitiveness. *Business Research Quarterly*, 17(2), 77–81.
<https://doi.org/10.1016/j.brq.2014.03.002>
- Mangalaraj, G., Nerur, S., & Dwivedi, R. (2022). Digital Transformation for Agility and Resilience: An Exploratory Study. *Journal of Computer Information Systems*, 63(1), 11–23.
<https://doi.org/10.1080/08874417.2021.2015726>
- Menon, S., & Suresh, M. (2020). Factors Influencing Organizational Agility in Higher Education. *Benchmarking: An International Journal*, 28(1), 307–332. <https://doi.org/10.1108/BIJ-04-2020-0151>
- Mulyono, H., & Syamsuri, Abd. R. (2023). Organizational Agility, Open Innovation, and Business Competitive Advantage: Evidence from Culinary SMEs in Indonesia. *International Journal of Social Science and Business*, 7(2), 268–275.
<https://doi.org/10.23887/ijssb.v7i2.54083>
- Musaigwa, M., & Kalitanyi, V. (2024). Effective leadership in the digital era: an exploration of change management. *Technology Audit and Production Reserves*, 1(4(75)), 6–14.
<https://doi.org/10.15587/2706-5448.2024.297374>
- Nasiri, M., Ukko, J., Saunila, M., & Rantala, T. (2020). Managing the Digital Supply Chain: The Role of Smart Technologies. *Technovation*, 96–97, 1–6.
<https://doi.org/10.1016/j.technovation.2020.102121>
- Nguyen, D. K., Broekhuizen, T., Dong, J. Q., & Verhoef, P. C. (2020). When It Takes Three to Tango in the Digital Transformation Age: Synergies Between Digital Orientation, Change Commitment and Organizational Agility. *AIS Electronic Library (AISeL)*, 1–9.
https://aisel.aisnet.org/icis2020/digital_innovation/digital_innovation/3
- Nissen, V., & Rennekampff, A. Von. (2017). Measuring the Agility of the IT Application Systems Landscape. *International Conference on Wirtschaftsinformatik*.
<https://www.researchgate.net/publication/313885355>
- Ojha, D., Acharya, C., & Cooper, D. (2018). Transformational Leadership and Supply Chain Ambidexterity: Mediating Role of Supply Chain Organizational Learning and Moderating Role of Uncertainty. *International Journal of Production Economics*, 197, 215–231.
<https://doi.org/10.1016/j.ijpe.2018.01.001>
- Perdana, E., & Syah, T. Y. R. (2023). The Effect of Social Capital and Collaborative Knowledge Creation on

- E-Business Proactiveness and Organizational Agility in Creating Business Sustainability. *International Journal Of Applied Business Research*, 5(2), 167–186. <https://doi.org/10.35313/ijabr.v5i02.326>
- Ravichandran, T. (2018a). Exploring the Relationships Between IT Competence, Innovation Capacity, and Organizational Agility. *Journal of Strategic Information Systems*, 27(1), 22–42. <https://doi.org/10.1016/j.jsis.2017.07.002>
- Ravichandran, T. (2018b). Exploring the relationships between IT competence, innovation capacity and organizational agility. *Journal of Strategic Information Systems*, 27(1), 22–42. <https://doi.org/10.1016/j.jsis.2017.07.002>
- Sasmoko, S., Mihardjo, L. W. W., Alamsjaha, F., & Elidjena, E. (2019). Dynamic Capability: The Effect of Digital Leadership on Fostering Innovation Capability Based on Market Orientation. *Management Science Letters*, 9(10), 1633–1644. <https://doi.org/10.5267/j.msl.2019.5.024>
- Seepma, A. P., De Blok, C., & Van Donk, D. P. (2020). Designing digital public service supply chains: four country-based cases in criminal justice. *Supply Chain Management*, 26(3), 418–446. <https://doi.org/10.1108/SCM-03-2019-0111>
- Shahzad, F., Xiu, G. Y., & Shahbaz, M. (2017). Organizational Culture and Innovation Performance in Pakistan's Software Industry. *Technology in Society*, 51, 66–73. <https://doi.org/10.1016/j.techsoc.2017.08.002>
- Sow, M., & Aborbie, S. (2018). Impact of Leadership on Digital Transformation. *Business and Economic Research*, 8(3), 139–148. <https://doi.org/10.5296/ber.v8i3.13368>
- Suharto. (2024). Challenges and Opportunities of Digital Transformation in Strategy Management. *International Journal of Science and Society*, 6(1), 620–630. <https://doi.org/https://doi.org/10.54783/ijssoc.v6i1.1050>
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic Capabilities and Organizational Agility: Risk, Uncertainty, and Strategy in the Innovation Economy. *California Management Review*, 58(4), 13–35.
- Tulungen, E. E. W., Saerang, D. P. E., & Maramis, J. B. (2022). Digital Transformation: Role of Digital Leadership. *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 10(2), 1116–1123. <https://doi.org/10.35794/emba.v10i2.41399>
- Veisheh, S., Shiri, A., & Eghbali, N. (2014). A Study on Ranking the Effects of Transformational Leadership Style on Organizational Agility and Mediating Role of Organizational Creativity. *Management Science Letters*, 4(9), 2121–2128. <https://doi.org/10.5267/j.msl.2014.8.006>
- Wanasida, A. S., Bernarto, I., Sudibjo, N., & Pramono, R. (2021). Millennial Transformational Leadership on Organizational Performance in Indonesia Fishery Startup. *Journal of Asian Finance, Economics and Business*, 8(2), 555–562. <https://doi.org/10.13106/jafeb.2021.vol8.no2.0555>
- Wang, C., & Hu, Q. (2020). Knowledge Sharing in Supply Chain Networks: Effects of Collaborative Innovation Activities and Capability on Innovation Performance. *Technovation*, 94–95, 1–13. <https://doi.org/10.1016/j.technovation.2017.12.002>
- Wang, Y., & Wang, C. (2023). The dark side of knowledge transfer: A visual

analysis using VOSviewer. *E a M: Ekonomie a Management*, 26(2), 122–139.

<https://doi.org/10.15240/tul/001/2023-2-008>

Zhang, H., Ding, H., & Xiao, J. (2023). How Organizational Agility Promotes Digital Transformation: An Empirical Study. *Sustainability*, 15(14), 1–13.

<https://doi.org/10.3390/su151411304>

Zhao, L., Zhang, H., & Wu, W. (2019). Cooperative Knowledge Creation in an Uncertain Network Environment Based on a Dynamic Knowledge Supernetwork. *Scientometrics*, 119(2), 657–685.

<https://doi.org/10.1007/s11192-019-03049-4>