Digital Skills of Local Government Executives in the 21st Century and Their Relationship with Employee Performance in Mueang District, Maha Sarakham Province

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Abstract

The digital transformation of the 21st century has redefined leadership roles, requiring local government executives to possess strong digital skills to improve organizational performance. This study investigates the digital competencies of local government executives in Mueang District, Maha Sarakham Province, and their relationship with employee performance. The objectives are to (1) assess the current status of digital skills among executives, (2) examine the influence of these skills on employee performance, and (3) analyze the correlation between digital competencies and key performance outcomes. A quantitative research design was applied using structured questionnaires and in-depth interviews. A sample of 100 participants was drawn from a population of 1,152 local government personnel through cluster random and purposive sampling. The instruments were validated by experts and pilot-tested, resulting in a Cronbach's alpha of 0.95. Data were analyzed using descriptive statistics and inferential techniques, including Pearson's correlation and multiple regression analysis via SPSS. Findings revealed that digital knowledge, communication, and technology-assisted decision-making significantly predicted employee performance. Problem-solving skills showed a positive but less substantial effect. These results underscore the importance of digital leadership development for local executives to enhance efficiency and service delivery. The study offers practical implications for public sector management and contributes to the academic discourse on digital governance.

Introduction

The 21st century has ushered in rapid digital transformation, fundamentally reshaping how organizations operate. These changes have placed increasing pressure on local government executives to develop digital competencies, particularly in areas such as problem-solving, communication, and data-informed decision-making (Chen, Y., Worapongpat, N., & Wongkumchai, T. 2024). Despite the widespread adoption of digital initiatives over 70% of Thai local government agencies have launched digital transformation projects only 45% of executives possess sufficient digital literacy to implement them effectively (Jianyu, Z., Wongkumchai, T., & Worapongpat, N., 2024).

Although prior studies have explored the significance of digital leadership, most have focused on private-sector organizations or urban settings. Research by (Jinlei, W., Worapongpat, N., & Wongkumchai, T., 2024) and (Dongjie, Z., Wongkumchai, T., & Worapongpat, N, 2024) points to a persistent gap between leadership competencies in digital environments and their practical application in enhancing public-sector employee performance. This research gap is particularly evident in regional contexts such as Mueang District, Maha Sarakham Province, where infrastructure constraints and varying levels of digital readiness hinder progress (Dongling, Z., & Worapongpat, N., 2023).

Mueang District represents a strategic hub in Thailand's decentralized administrative system, yet it faces challenges including limited access to modern technology and inconsistent digital proficiency among executives (Prayukvong & Rees, 2010; JianFeng & Worapongpat, 2024). Field observations and interviews with local officials have revealed a growing interest in adopting digital tools, but a lack of leadership capacity remains a barrier to effective implementation (Min, Y., & Worapongpat, N., 2023). While frontline staff often express enthusiasm for digital innovations, they require consistent guidance and support from their superiors (Jianyu et al., 2024).

This study therefore seeks to examine the relationship between 21st-century digital skills among local government executives and the performance of their employees. It aims to identify how digital competencies specifically problem-solving, communication, and decision-making—affect employee productivity, efficiency, and job satisfaction (Worapongpat et al., 2024). Employing a mixed-methods approach, the study integrates quantitative surveys with qualitative interviews to offer a comprehensive understanding of the issue (Sophon, T., & Worapongpat, N, 2025).

By addressing this critical leadership-performance gap, the findings will provide actionable insights for policymakers, training providers, and local agencies. Furthermore, the study aims to establish a practical framework for digital leadership development, contributing to improved governance and service delivery in the public sector. Academically, it expands the literature on digital transformation in local government and provides a foundation for future research in similar regional contexts.

Objective

1. To examine the current status of 21st-century digital skills possessed by local government executives and their relevance to the performance of local government employees in Mueang District, Maha Sarakham Province.

2. To assess the extent to which local government executives' 21st-century digital skills influence the performance of local government employees in Mueang District, Maha Sarakham Province.

3. To analyze the relationship between the digital skills of local government executives in the 21st century and the performance outcomes of local government employees in Mueang District, Maha Sarakham Province.

Literature Review

1. Digital skills are increasingly recognized as a critical pillar of effective leadership in the 21st century. According to (Worapongpat et al., 2025), digital competence encompasses the confident and critical use of information and communication technology (ICT) for work, learning, and communication. Leaders equipped with strong digital capabilities are better positioned to make informed decisions, foster transparent communication, and solve problems efficiently within technology-driven environments. (Yasuttamathada, N., & Worapongpat, N., 2025) further assert that digital literacy has evolved from an optional asset to an essential leadership competency, especially amid the complexities of contemporary organizational challenges. Nevertheless, a significant digital skills gap persists in public sector leadership, frequently resulting in reduced employee performance and diminished organizational effectiveness.

2. The nexus between digital leadership and employee performance has garnered extensive scholarly attention. (Worapongpat, N., Thavisin, N., & Viphoouparakhot, B., 2024) define effective digital leadership as the strategic integration of digital tools into managerial practices to enhance workforce productivity and engagement. Research by (Ravichandran et al., 2021) demonstrates that leaders proficient in digital technologies positively influence employee performance and satisfaction by cultivating a supportive, innovation-oriented work environment. In the local government context, (Worapongpat et al., 2024) highlights that digital leadership significantly improves service delivery efficiency, particularly when leaders effectively utilize digital tools to streamline operations and foster communication.

3. Despite growing recognition of its importance, digital transformation in local governments is often impeded by resource limitations, insufficient training, and organizational resistance to change. The reports that many local agencies face obstacles integrating digital technologies due to financial constraints and underdeveloped leadership capabilities. In Thailand, observe that while initiatives such as the "Thailand 4.0" policy aim to accelerate digital transformation, their implementation remains inconsistent especially in rural provinces. (Wang, J., Worapongpat, N., & Wongkumchai, T., 2024) further note that many local administrators lack the technical capacity to adopt and manage digital tools, leading to fragmented service delivery and subpar employee performance.

4. While existing literature affirms the role of digital leadership in enhancing organizational performance, studies that explicitly examine the impact of administrators' digital skills within local government settings are limited. Much of the prior research such as that by (Worapongpat, N., & Bhasabutr, P., 2024) focuses on private enterprises or urban municipalities, leaving a knowledge gap regarding the challenges and dynamics specific to rural administrative contexts. Moreover, there is insufficient exploration of how distinct digital competencies such as data-informed decision-making, digital communication, and problem-solving correlate with tangible employee outcomes. This study aims to address these gaps by investigating the influence of digital leadership on local government employee performance in Mueang District, Maha Sarakham Province, thereby offering a localized, empirical perspective.

Research Conceptual Framework

This study is grounded in Transformational Leadership Theory (Worapongpat, N., & Somchob, P., 2024) and established Digital Competency Frameworks (Worapongpat, N., & (Narong Uttamavangso Sendaranath), P., 2024). Transformational leadership underscores the importance of visionary leadership that inspires, motivates, and empowers employees to exceed performance expectations. When integrated with digital competencies, this theoretical lens enables a robust analysis of how modern leadership behaviors impact organizational effectiveness. Additionally, the study incorporates the Technology Acceptance Model, which elucidates the determinants of technological adoption and utilization within organizational settings. Together, these frameworks offer a comprehensive basis for examining the interplay between digital leadership and employee performance in local government contexts.
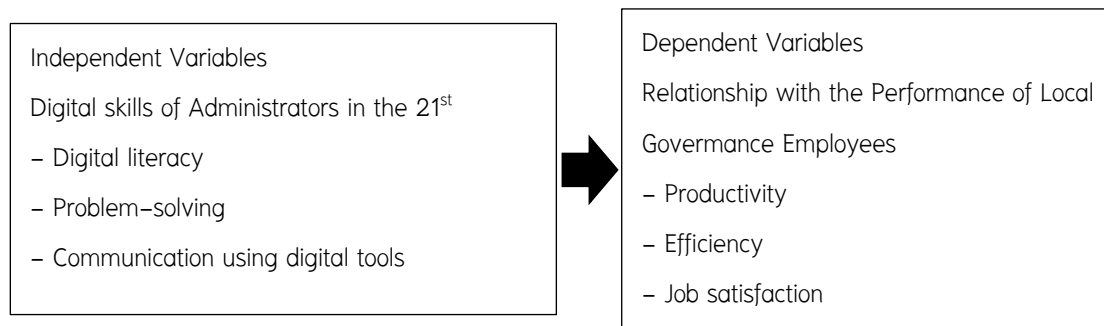
Conceptual Framework

Independent Variables	Dependent Variables
Digital skills of Administrators in the 21st	Relationship with the Performance of Local Govermance Employees
– Digital literacy	– Productivity
– Problem-solving	– Efficiency
– Communication using digital tools	– Job satisfaction

Figure 1: Conceptual Framework

Methodology

Population and Sample

1. Population: The population for this study comprises local government officers, permanent employees, and temporary staff working in all local government organizations within Mueang District, Maha Sarakham Province, totaling 1,152 individuals.

2. Sample: A total of 100 individuals were selected as the sample group, consisting of local government officers, permanent employees, and temporary staff. The sample was obtained through cluster random sampling across various local administrative organizations, followed by purposive sampling to select specific individuals deemed suitable for the study's objectives.

Research Instruments

The research instruments included both interview forms and a structured questionnaire, which was divided into three sections:

Section 1: General demographic data of the respondents, including gender, age, education level, and years of service.

Section 2: A 5-point Likert-scale questionnaire measuring the 21st-century digital skills of executives in relation to the performance of local government employees.

Section 3: Open–ended questions for additional comments and suggestions.

To ensure the instrument's quality: The questionnaire was reviewed and revised with input from the research advisor.

It was validated for content accuracy by three experts using the Index of Item–Objective Congruence (IOC), with values ranging from 0.80 to 1.00.

A pilot study was conducted with 30 individuals not included in the main sample group to assess reliability. The items showed correlation coefficients ranging from 0.25 to 0.75, and the overall reliability (Cronbach's alpha) was found to be 0.95.

Data Collection

Primary Data: Collected via structured questionnaires and in–depth interviews with respondents from the sample group.

Secondary Data: Obtained through document research, including academic books, journal articles, previous research studies, and credible online sources.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software. The analysis was divided into the following components:

Section 1: Demographic data were analyzed using descriptive statistics (frequency, percentage).

Section 2: Digital skills of executives and their impact on employee performance were analyzed using means and standard deviations, presented in tabular format with interpretation based on a 5–level scale.

Section 3: The relationship between executive digital skills and employee performance was analyzed using Pearson's Product–Moment Correlation Coefficient.

Section 4: To test the impact of executive digital skills on employee performance, multiple regression analysis (Enter Method) was employed.

Statistical Techniques Employed

Instrument Quality Assessment: Content validity: Index of Item–Objective Congruence (IOC) Reliability: Cronbach's Alpha Coefficient (Cronbach, 1990)

Descriptive Statistics: Frequency, percentage, mean, standard deviation

Inferential Statistics: Pearson's Product–Moment Correlation Coefficient Multiple Regression Analysis (Enter Method)

Results

Section 1: General Overview of 21st–Century Digital Skills of Executives and Local Government Employee Performance

The demographic profile of respondents in Mueang District, Maha Sarakham Province, revealed a relatively balanced gender distribution, with 52% identifying as male and 48% as female. In terms of educational attainment, the majority of respondents held a bachelor's degree (63%), while 37% had completed a master's degree. Regarding

professional roles within their respective local government organizations, 47% were in operational positions, 38% held supervisory roles, and only 15% occupied managerial or executive-level positions.

These demographic characteristics provide important contextual information for interpreting the relationship between the digital skills of executives and the performance of local government employees. The balanced gender composition and high level of educational attainment suggest a workforce that is both diverse and equipped for professional development. Furthermore, the distribution of roles underscores the importance of executive digital skills in influencing a broad base of employees across multiple organizational levels, particularly under the principles of ESG (Environmental, Social, and Governance) leadership.

Table 1: Digital Skills of Executives in the 21st Century and Local Government Employee Performance in Mueang District, Maha Sarakham

No.	Digital Skills	Mean ($\bar{x}$)	SD	Level
1	Digital knowledge and understanding	4.20	0.80	High
2	Problem-solving	4.32	0.69	High
3	Communication via digital tools	4.49	0.72	High
4	Decision-making using technology	4.49	0.93	High

Summary: All digital skills of executives in the 21st century related to local government employee performance in Mueang District are rated highly, with mean scores ranging from 4.20 to 4.49, indicating strong capabilities across all aspects.

Table 2: Analysis of the performance level of local government officials in Mueang District, Maha Sarakham Province

No.	Local Government Employee Performance	Mean ($\bar{x}$)	SD	Level
1	Productivity	4.50	0.88	Highest
2	Efficiency	4.41	0.68	High
3	Job Satisfaction	4.92	0.83	Highest

Summary: Local government employee performance in Mueang District is rated highly across all areas, with mean scores ranging from 4.41 to 4.92, indicating high levels of productivity, efficiency, and job satisfaction.

Table 3: Results of Pearson's Product-Moment Correlation Analysis between Digital Leadership Skills of 21st Century Leaders and Local Government Employees' Performance in Mueang District, Maha Sarakham

Digital Leadership Skills	Employee Performance (Y_1)	Employee Performance (Y_2)	Employee Performance (Y_3)	Overall (Y)
X_1 Knowledge and Understanding	1.00	0.559**	0.574**	0.559**

Digital Leadership Skills	Employee Performance (Y₁)	Employee Performance (Y₂)	Employee Performance (Y₃)	Overall (Y)
X_2 Problem–Solving Skills	0.28	0.520**	0.470**	0.510**
X_3 Digital Communication	0.25	0.523**	0.548**	0.566**
X_4 Decision–Making with Tech	0.30	0.681**	0.673**	0.738**
Overall (X)	0.457	0.622**	0.627**	0.664**

** $p < 0.01$ (Statistically significant)

From Table 3, the Pearson's correlation coefficients between the 21st–century digital leadership skills and the local government employees' performance indicate significant positive relationships across all variables.

X_1 (digital knowledge and understanding) shows a moderate positive correlation with the employee performance variables (Y_1, Y_2, Y_3) ranging from 0.466 to 0.574, suggesting that better digital knowledge is linked to better employee performance.

X_2 (problem–solving skills) and X_3 (digital communication skills) also exhibit positive and statistically significant relationships with the performance indicators, with X_2 showing values between 0.470 and 0.490, and X_3 showing values from 0.483 to 0.548.

X_4 (decision–making with technology) displays the strongest correlation with employee performance, particularly with Y_2 (efficiency) and Y_3 (work satisfaction), which have correlations of 0.681 and 0.738, respectively, indicating a strong positive relationship.

Overall, the findings demonstrate that enhancing digital leadership skills significantly influences the performance of local government employees in Mueang District, Maha Sarakham, especially in terms of work output, efficiency, and job satisfaction.

Table 4: Results of Standardized Regression Coefficients Analysis of Digital Leadership Skills of 21st Century Leaders in Predicting the Performance of Local Government Employees in Mueang District, Maha Sarakham

Variable	b	β	SE_b	t	P–value
(Constant)	1.128		0.171	8.361	.000
Digital Knowledge and Understanding	0.286	0.276	0.048	3.574**	.000
Problem–Solving Skills	0.193	0.264	0.055	1.592	.093
Digital Communication Skills	0.328	0.415	0.074	3.116**	.002
Decision–Making with Technology	0.458	0.890	0.052	5.000**	.000

$R = .775$, SE_est $= .349$, $F = 139.55$, $R^2 = .717$, $a = 1.428$

** $p < 0.01$ (Statistically significant)

The analysis shows that several digital leadership skills have a statistically significant effect on the performance of local government employees in Mueang District, Maha Sarakham.

Digital Knowledge and Understanding, Digital Communication Skills, and Decision-Making with Technology are significant predictors with p-values less than 0.01.

The Problem-Solving Skills did not show a statistically significant relationship with performance (p = 0.093), indicating it might not be as impactful in this model.

The R^2 value of 0.717 suggests that approximately 71.7% of the variance in employee performance can be explained by the digital leadership skills of the 21st-century leaders.

The overall model is significant with a high F-value of 139.55, indicating that the predictors combined explain a substantial portion of the variability in employee performance.

Discussion and Conclusion

Discussion

Objective 1: To investigate the relationship between 21st-century digital leadership skills and the job performance of local government employees. The research findings indicate that the digital knowledge and understanding skills of administrators exhibit a statistically significant positive correlation with employee job performance. This suggests that administrators possessing an in-depth comprehension of digital tools and technologies can effectively supervise and guide employees. Consequently, this fosters increased employee confidence in utilizing these tools, leading to more rapid and accurate work processes. This research outcome aligns with the studies of (Worapongpat et al., 2024), which identified the impact of leaders' digital capabilities on employee motivation and efficiency. Furthermore, it supports the findings of (Yasuttamathada et al., 2025), demonstrating that leaders with advanced digital skills can cultivate a conducive environment for learning and the effective implementation of innovation in the workplace.

Objective 2: To examine the effect of administrators' problem-solving skills on employee job performance. The study revealed a positive correlation between problem-solving skills and employee job performance; however, this relationship did not reach statistical significance. This may imply that this particular skill set exerts influence on job performance in specific contexts or job types rather than directly impacting overall work efficiency. This finding is consistent with the research by (Wongkumchai et al., 2023), which proposed that while problem-solving skills are a crucial attribute, their practical impact might be overshadowed by skills more pertinent to daily operations, such as communication and decision-making. It also resonates with the work of (Worapongpat et al., 2025), which suggested that problem-solving skills become particularly salient when confronting complex or immediate crisis situations, rather than serving as a primary driver of job performance under normal circumstances.

Objective 3: To explore the effect of digital communication skills and technology-driven decision-making on employee job performance. The research findings demonstrate that both digital communication skills and decision-making utilizing technology exhibit a statistically significant positive correlation with employee job performance. This reflects the crucial role of administrators who can communicate effectively through digital platforms and make

accurate and timely decisions supported by technology in elevating the efficiency of personnel within the organization. This outcome corroborates the research of (Worapongpat et al., 2024), which indicated that digital communication fosters teamwork and mutual understanding within organizations. Moreover, it aligns with the research of (Worapongpat et al., 2025), which suggested that leaders who leverage technology in their decision-making processes tend to be more accurate and up-to-date, thereby enhancing overall organizational efficiency. This also underpins the systematic use of data in work planning.

Conclusion

In summary, the analysis of the results based on the three research objectives reveals the importance of Digital Knowledge, Digital Communication Skills, and Decision-Making with Technology in enhancing employee performance in the context of 21st-century leadership. Although Problem-Solving Skills were found to have a positive relationship with performance, their impact was less pronounced, possibly due to the nature of the tasks involved. These findings are consistent with prior research, which highlights the significance of digital skills in leadership for improving organizational performance in the digital age.

Originality and Body of Knowledge

From the study of Digital Skills of Local Government Executives in the 21st Century and Their Relationship with Employee Performance in Mueang District, Maha Sarakham Province found knowledge that can be summarized into a diagram.

Diagram 2: The findings of this study make a significant contribution to the body of knowledge in the area of digital leadership, particularly in relation to its impact on employee performance within local government organizations in Thailand

From diagram 2 it is shown that While previous research has explored digital leadership in various sectors, this study is among the first to specifically examine how digital leadership skills influence performance in the context of local government in the Mueang District of Maha Sarakham. By focusing on 21ˢᵗ-century leadership skills such as digital literacy, communication, problem-solving, and decision-making the study offers new insights into the key competencies that enhance public sector performance. A key contribution is the finding that digital decision-making has the strongest influence on employee performance underscoring the critical role of technology-driven leadership in achieving organizational outcomes. This research extends traditional leadership theories by integrating digital competencies as core leadership skills rather than supplemental abilities. It reinforces the growing recognition that effective leadership in the digital age requires a deep understanding of technology and its application in decision-making and communication. Practically, the study provides valuable guidance for developing training programs in local government. It highlights the specific digital skills that policymakers and training developers should prioritize to improve leadership effectiveness and employee performance. Moreover, the findings open pathways for future research, such as longitudinal studies on the impact of digital leadership across different sectors and regions, and investigations into how cultural and contextual factors influence the effectiveness of digital leadership.

Summary

This research offers original insights into the intersection of digital leadership and employee performance in a Thai local government setting, enriching the academic discourse and offering practical implications for modern leadership development.

Suggestions

1. Suggestions for applying research results (Practical Applications)

Based on the findings, local government organizations particularly in the Mueang District of Maha Sarakham can apply the following strategies to enhance employee performance through digital leadership:

Training and Development: Establish continuous professional development programs focusing on digital competencies, especially digital communication, decision-making, and problem-solving through technology.

Leadership Capacity Building: Organize digital leadership workshops to help leaders integrate digital tools into strategic and day-to-day decision-making processes.

Improving Digital Infrastructure: Strengthen digital systems and tools to support leaders and employees in executing their roles efficiently. Ensure all staff have access to essential digital devices and platforms.

Fostering a Digital-First Culture: Promote a culture where digital tools and innovation are actively embraced. Encourage adaptability and continuous learning to keep pace with technological advancements.

Policy Integration: Integrate digital leadership into local government policy frameworks. Develop clear guidelines that support digital skill development and mandate its incorporation into public management practices.

Monitoring and Evaluation: Establish mechanisms to assess the effectiveness of digital leadership practices in enhancing employee performance and organizational outcomes.

2. Suggestions for further research (Recommendations for Future Research)

To deepen the understanding of digital leadership in local government contexts, future studies may consider:

Longitudinal Research: Investigate the long-term effects of digital leadership on employee engagement, innovation, and service delivery to the public.

Comparative Sectoral Studies: Explore differences in the application and outcomes of digital leadership between public, private, and non-profit organizations to identify sector-specific challenges and solutions.

Cultural and Regional Influences: Examine how cultural norms or regional characteristics shape the adoption and effectiveness of digital leadership practices in different parts of Thailand or across countries.

Exploring Broader Outcomes: Extend the scope to include the impact of digital leadership on citizen satisfaction, innovation capabilities, and organizational agility in local governance.

Personalized Leadership Development: Study the design and impact of tailored digital leadership training programs based on leadership levels and functional responsibilities.

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