

THE APPLICATION OF DIGITAL TOOLS TO ENHANCE EMPLOYEE WORK EFFICIENCY IN ORGANIZATIONS

Chutima Teerasuwan

Institute for Research and Development, Suan Sunandha Rajabhat University,
Bangkok, Thailand

E-mail: chutima.te@ssru.ac.th

Thananya Santithamkul

Faculty of Humanities and Social Science, Suan Sunandha Rajabhat University,
Bangkok, Thailand

E-mail: thananya.sa@ssru.ac.th

Nayot Kulpanich

E-mail: nayot.ku@ssru.ac.th

Abstract

This academic article presents the results of a study on the application of digital tools, particularly artificial intelligence (AI), to enhance work performance and support knowledge management (KM) among organizational personnel. Data were collected through questionnaires administered to a purposive sample of 22 staff members from the Institute for Research and Development, Suan Sunandha Rajabhat University. The evaluation covered six dimensions: (1) large-scale data analysis, (2) information retrieval, (3) multitasking management, (4) handling repetitive or analytical tasks, (5) creative work development, and (6) the use of AI for summarizing and analyzing information, such as meeting reports or news writing. The findings revealed a high level of use of conversational AI tools (e.g., Gemini, ChatGPT, Claude) and collaborative work-support tools (e.g., Google Applications and Microsoft Teams). A comparison of pre- and post-AI usage showed increased average performance scores across all dimensions, indicating that digital tools and AI play a significant role in enhancing speed, accuracy, reducing redundancy, and strengthening creative work capacity. The study suggests that organizations should support digital skill development and establish appropriate AI usage guidelines to ensure sustainable outcomes.

Keywords: digital tools; work performance; online collaboration; automation; artificial intelligence; technology acceptance; digital transformation

Introduction

In the digital era, technology has become a fundamental infrastructure for organizational operations, encompassing management, communication, and daily work practices. Many organizations have adopted digital tools to enhance efficiency, reduce errors, and minimize repetitive workloads, such as project management systems, online collaboration platforms, automation tools, and artificial intelligence (AI) applications such as ChatGPT and Microsoft Copilot. However, organizational technology adoption continues to face challenges, including limited user understanding, resistance to change, and insufficient policy-level support from management. As a result, the potential of technology to improve work performance has not been fully realized. This article therefore aims to present approaches and empirical findings on the application of digital tools and AI in organizational contexts, providing insights for policy development, personnel capacity building, and workflow improvement in support of digital transformation.

Objectives of the Study

1. To examine types of digital tools that enhance organizational work performance.
2. To analyze the impact of digital tool usage on work efficiency and quality.
3. To explore personnel opinions and satisfaction regarding the use of digital tools.
4. To propose guidelines for applying digital tools appropriately within organizational contexts.

Scope of the Study

Content scope: Digital tools such as Google Applications, Microsoft Teams, Zoom, ChatGPT, and automation tools.

Population scope: Personnel of the Institute for Research and Development, Suan Sunandha Rajabhat University.

Time frame: October 2024 – September 2025.

Variables:

- Independent variable: Use of digital tools
- Dependent variables: Work performance, satisfaction, and work quality

Literature Review

A review of related literature, concepts, theories, and research indicates that enhancing work performance in the digital era requires not only the adoption of technology but also the concurrent development of personnel capabilities, particularly through training aligned with organizational roles and contexts.

Digital tools—including data analytics, robotic process automation, digital communication platforms, and AI—play a crucial role in improving employee productivity, facilitating knowledge sharing, and enhancing human resource processes. Digital tools are defined as software, platforms, or cloud-based services that support content creation, management, communication, collaboration, and automation within organizations. Anutrakul (2021) emphasized that digital literacy and technology utilization skills significantly affect work performance and collaboration in Thailand 4.0 organizations.

Structural and cultural transformation perspectives proposed by Prawanich (2018) and the Office of the Permanent Secretary, Ministry of Education (2018) align with the findings of Srikanok and Klaysung (2024), who demonstrated that well-designed training programs enhance not only technical skills but also teamwork, confidence, and positive organizational culture—key drivers for effective digital tool adoption.

Empirical studies further support this framework. Mekhum and Bunrueng (2019) developed an electronic document retrieval and tracking system for Suan Sunandha Rajabhat University, resulting in reduced processing time and improved administrative efficiency. Srikanok and Klaysung (2024) found that training significantly improved personnel knowledge, skills, task accuracy, and teamwork. Sribunrueng et al. (2025) identified communication, continuous training, and workload management as critical factors affecting secretarial service effectiveness.

International studies corroborate these findings. Mohamed et al. (2022) highlighted the role of robotic process automation (RPA) in enhancing HRM efficiency, while Morawiec and Sołtysik-Piorunkiewicz (2023) emphasized digital transformation technologies in improving organizational agility. Krick et al. (2019) noted the limited scope of efficiency-focused digital health studies, calling for broader investigations. Hu et al. (2022) demonstrated the benefits of Digital Twin and Industry 4.0 technologies for workforce training and construction project

efficiency. Priyashantha et al. (2024) confirmed the positive impact of e-HRM on employee and organizational performance.

Despite these benefits, challenges remain, including privacy concerns, AI bias, and the need for quality assurance in digital technologies. Addressing these issues requires continuous research and alignment between digital tool adoption, organizational goals, and employee needs.

Research Methodology

This study employed a quantitative research design to examine the application of digital tools in enhancing organizational work performance.

1. Population and Sample

The population comprised organizational personnel who currently use or plan to adopt digital tools in their work. A purposive sampling method was employed to select participants with direct experience in digital tool usage. The sample included operational staff, management personnel, and IT staff involved in digital tool utilization or support.

2. Research Instrument

Data were collected using a structured questionnaire developed through an extensive literature review. The questionnaire consisted of five sections: (1) demographic information, (2) frequently used AI tools, (3) attitudes, abilities, and work behaviors before AI use, (4) attitudes, abilities, and work behaviors after AI use, and (5) open-ended suggestions.

A five-point Likert scale was applied, with interpretation criteria based on Best (1981).

3. Data Collection

Questionnaires were distributed to academic support staff at the Institute for Research and Development, Suan Sunandha Rajabhat University, and collected by the researchers within the designated timeframe.

Results

This research project, entitled Application of Digital Tools to Enhance Organizational Work Performance, aimed to examine the types of digital tools that enhance work performance, analyze the impact of digital tool usage on work efficiency and quality, explore personnel opinions and satisfaction regarding the use of digital tools, and propose appropriate guidelines for applying digital tools within organizational contexts. The study was conducted with a sample of 22 personnel from the Institute for Research and Development, Suan Sunandha Rajabhat University.

The results revealed that personnel have increasingly adopted digital tools as supportive instruments for work operations, particularly collaboration-oriented tools and artificial intelligence technologies, such as Google Workspace (Google Docs and Google Sheets) and ChatGPT. These tools were widely used due to their ease of use and suitability for collaborative work within the organization. The use of such digital tools significantly reduced task completion time, minimized workload redundancy, and improved work accuracy at a statistically significant level.

Furthermore, most personnel reported a high level of satisfaction with the use of digital tools, especially in terms of convenience, speed, and real-time collaboration capabilities. The findings suggest that the effective application of digital tools should be aligned with job characteristics and the specific organizational context, alongside continuous training and digital

skill development for personnel, in order to sustainably enhance work performance and quality in the long term.

Data were collected through questionnaires distributed to a sample of academic support personnel at the Institute for Research and Development, Suan Sunandha Rajabhat University. A total of 22 completed questionnaires were returned and subsequently analyzed to generate the research findings.

Part 1: General Information of the Respondents

Table 1: General Information of Academic Support Personnel at the Institute for Research and Development

General Information	Number (persons)	Percentage
Gender		
Male	8	36.40
Female	14	63.60
Age Group		
25–35 years	5	22.70
36–45 years	13	63.60
46 years and above	3	13.60
Position / Job Role		
Academic support personnel	22	100.00
Length of Service at the Institute for Research and Development, Suan Sunandha Rajabhat University		
1–5 years	3	13.60
6–10 years	6	27.30
More than 10 years	13	59.10
Total	22	100.00

Based on data collected from a total of 22 respondents, the majority of participants were female, with 14 respondents (63.60%), while 8 respondents were male (36.40%). In terms of age, most respondents were in the 36–45 age group, accounting for 13 individuals (63.60%), followed by those aged 25–35 years, with 5 respondents (22.70%), and those aged 46 years and above, with 3 respondents (13.60%).

Regarding personnel classification, all respondents (100%) were academic support staff. Concerning length of service at the Institute for Research and Development, Suan Sunandha Rajabhat University, most respondents had more than 10 years of work experience, totaling 13 individuals (59.10%). This was followed by those with 6–10 years of service, comprising 6 respondents (27.30%), and those with 1–5 years of service, comprising 3 respondents (13.60%). These findings indicate active participation of personnel in evaluating and providing feedback on the application of digital tools to enhance organizational work performance.

Part 2: Survey of Frequently Used AI Tools in the Organization

Table 2: Frequently Used AI Tools

AI Tool Usage	Mean ($\bar{X}$)	S.D.	Interpretation
1. Gemini / ChatGPT / Claude / Google Bard (conversational AI capable of content creation, answering questions, summarizing information, code writing, and other tasks)	4.79	0.42	Very high
2. Notion AI (AI integrated with note-taking, project management, and knowledge base management)	4.68	0.47	Very high
3. Canva AI (AI-assisted image creation and editing on graphic design platforms)	4.37	0.67	High
4. Buffer AI Assistant (AI that assists users in creating and improving social media content to enhance efficiency and save time)	4.16	0.78	High
5. NotebookLM (Google AI that summarizes documents, analyzes data, and converts articles into video scripts, with free access and advanced features)	3.58	0.95	Moderate
Overall	4.26	0.47	High

From Table 2, the analysis of the frequency of AI tool usage among respondents indicates that the highest mean score was reported for “**Gemini / ChatGPT / Claude / Google Bard**” (conversational AI capable of content creation, answering questions, summarizing information, code writing, and other tasks), with a mean of **4.79** and a standard deviation (S.D.) of **0.42**. This was followed by “**Notion AI**” (AI integrated with note-taking, project management, and knowledge base management), which also showed a high level of usage, with a mean of **4.68** and an S.D. of **0.47**. These results reflect the types of AI tools most frequently used by the sample group.

In contrast, “**NotebookLM**” (a Google AI tool that helps summarize documents, analyze data, and convert articles into video scripts, offering free access with advanced features) received the lowest mean score, at **3.58**, with an S.D. of **0.95**.

Table 3: Assessment of Attitudes, Abilities, and Work Behaviors (Before Using AI)

Items	Mean ($\bar{X}$)	S.D.	Interpretation
1. You can analyze large volumes of data quickly.	4.32	0.78	High
2. You can quickly search for information necessary for work.	4.53	0.63	High
3. You can manage multiple tasks simultaneously in an efficient manner.	4.37	0.70	High
4. You can quickly handle repetitive tasks or tasks requiring in-depth analysis.	4.16	0.85	High

Items	Mean ($\bar{X}$)	S.D.	Interpretation
5. You spend only a small amount of time and effort planning/creating new work or ideas.	4.21	0.87	High
6. You can effectively analyze or summarize information (e.g., meeting reports, news writing).	4.05	0.84	High
Overall	4.27	0.90	High

From Table 3, the pre-AI assessment results indicate that the mean scores across all dimensions ranged from 4.05 to 4.53 (S.D. = 0.63–0.87). In particular, the ability to analyze large volumes of data and to quickly search for information required for work received high ratings, with 90.20% of respondents evaluating these aspects at a “high” level. In addition, the findings reflect that personnel already used AI to search for work-related information in order to further improve work efficiency.

Table 4: Assessment of Attitudes, Abilities, and Work Behaviors (After Using AI)

Items	Mean ($\bar{X}$)	S.D.	Interpretation
1. AI helps you analyze large volumes of data quickly.	4.58	0.62	Very high
2. AI helps you quickly search for information necessary for work.	4.74	0.44	Very high
3. AI helps you manage multiple tasks simultaneously in an efficient manner.	4.74	0.44	Very high
4. AI helps you quickly handle repetitive tasks or tasks requiring in-depth analysis.	4.79	0.41	Very high
5. You can create new work/ideas with AI as an assistant.	4.74	0.44	Very high
6. You can effectively analyze or summarize information with AI assistance (e.g., meeting reports, news writing).	4.84	0.37	Very high
Overall	4.31	0.65	High

When comparing the results after AI adoption, the findings show that the mean scores across all dimensions increased significantly, ranging from 4.58 to 4.84 (S.D. = 0.37–0.44). In particular, the use of AI tools to improve the ability to analyze or summarize information—such as meeting reports and news writing—received the highest ratings, with 86.20% of respondents evaluating this aspect at a “very high” level. Moreover, none of the respondents rated any item at the “low” or “very low” level after using AI. These results indicate that AI plays an important role in enhancing personnel capabilities in knowledge management tasks, particularly in terms of speed, accuracy, and creativity. The study highlights the need for organizations to accelerate the promotion and support of AI integration into daily work processes in order to continuously strengthen personnel capacity and work

Discussion

The findings are consistent with the Technology Acceptance Model (TAM), which posits that perceived usefulness and ease of use drive technology adoption. The results also align with Diffusion of Innovation Theory and the Unified Theory of Acceptance and Use of Technology (UTAUT), particularly performance expectancy and effort expectancy. However, sustained long-term use requires ongoing support systems, including continuous training, safe AI usage guidelines, and consultation mechanisms.

Recommendations

1. Practical Recommendations

Organizations should provide continuous training in both fundamental digital skills and practical AI applications, while promoting collaborative learning to enhance confidence and reduce resistance.

2. Policy Recommendations

Clear AI usage policies and data governance frameworks should be established, addressing privacy, data security, output verification, and responsible use.

3. Research Recommendations

Future studies should expand samples to different organizational contexts and examine factors influencing sustained technology use to design effective and sustainable support systems.

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