

## INFORMATION LITERACY, DIGITAL LITERACY, AND BEHAVIOURAL INTENTION: STUDY OF DIGITAL TECHNOLOGY ADOPTION BY CIVIL SERVANTS IN GOVERNMENT WORKPLACES

Ammy Rakhmiati<sup>1a\*</sup>, Suwandi Sumartias<sup>2b</sup>, Priyo Subekti<sup>3c</sup>

<sup>1,2,3</sup> Department of Master's Studies, Faculty of Communication Sciences, Padjadjaran University, Sumedang, West Java

<sup>a</sup> [ammy24001@mail.unpad.ac.id](mailto:ammy24001@mail.unpad.ac.id)

<sup>b</sup> [suwandi.sumatias@unpad.ac.id](mailto:suwandi.sumatias@unpad.ac.id)

<sup>c</sup> [priyo.subekti@unpad.ac.id](mailto:priyo.subekti@unpad.ac.id)

(\*) Corresponding Author

[ammy24001@mail.unpad.ac.id](mailto:ammy24001@mail.unpad.ac.id)

### ARTICLE HISTORY

Received : 20-04-2026

Revised : 07-05-2026

Accepted : 15-06-2026

### KEYWORDS

*information literacy,  
digital literacy,  
perceived ease of use,  
perceived usefulness,  
behavioural intention*

### ABSTRACT

Local governments often struggle to fully adopt digital technologies to strengthen public service delivery and organizational performance. This study addresses the limited empirical evidence on how civil servants' information literacy and digital literacy jointly shape system acceptance within the Technology Acceptance Model (TAM) framework in local government settings. Using a probability sample of 258 civil servants. The data were collected by a survey and analyzed using PLS-SEM. The results indicate that both information literacy and digital literacy have a significant positive effect on perceived ease of use, while only information literacy has a direct and significant effect on perceived usefulness. Perceived ease of use also significantly enhances perceived usefulness and strengthens civil servants' behavioral intentions to adopt digital technologies in their work. These results highlight that strengthening civil servants' information literacy and digital literacy, combined with user-friendly system design, is crucial to promoting sustainable digital technology use and improving public service performance in public institutions.

This is an open access article under the CC-BY-SA license.



### INTRODUCTION

System administration and regulation on all around world has been transforming for the last decade with the increase of digital information technology usage on governments. Information Technology (IT) is not merely an supporting system but rather a fundamental infrastructure of bureaucratic reform and better public service with implementation of E-Government. According to United Nations UN E-Government Survey Report (2024), there was an upward trend of the average of E-Government Development Index (EGDI) worldwide. Developed countries such as The Netherlands and Singapore have been quite successfully with the whole and sustainable implementation of

digital government services (E-Government), for instance by the reinforcement of public servants' human resources (OECD, 2024). In contrast, Indonesia's EDGI score remains in the range of 0.65–0.70 and is ranked around 88 out of 193 countries. Government of Indonesia responds the challenges by implementing various strategical efforts among others stated in Book Visi Indonesia Digital 2045 (Kementerian Komunikasi dan Digital Republik Indonesia) which aims to enhance digital literacy among fifty million people, including civil servants and citizens, and to strengthen civil service digital competence through Law No. 20/2023 on the State Civil Apparatus and Presidential Regulation No. 95/2018 on E-Government.

Although the policy framework has been established, several studies indicate that the digital capability of civil servants remains one of the weakest elements in Indonesia's digital skills ecosystem. A study conducted by The SMERU Research Institute together with Digital Pathways Oxford and UNESCAP (2022) shows that civil servants' digital competence indicators within the e-government framework still focus mainly on basic computer skills and office productivity applications, while higher-level skills such as data management, process automation, data analytics, and digital service development are still limited. This situation contrasts with practices in countries like the United Kingdom and Australia, where specific digital competences are required for certain positions and integrated into job descriptions and key performance indicators. (SMERU Research Institute & Pathways at University of Oxford, 2022).

Empirical evidence further shows that the actual use of digital technologies system by civil servants is often not aligned with the expectations of government digital transformation. Rumata & Nugraha (2020) found that officials at the Ministry of Communication and Information Technology had digital knowledge and skills at a "fair" level but exhibited low digital behavior. Febriyanti et al (2023) reported that low levels of digital literacy and technological skills among civil servants in Palembang City contributed to the inefficient implementation of the E-Lapkin application. Herwanto et al (2024) also identified a gap between the digitalization requirements of government systems and civil servants' digital competences, and called for more fundamental and systematic policies on digital competence standards. In addition, Isabella et al (2025) emphasized that E-government and digital literacy in government settings must be developed in an integrated manner, as both are crucial for designing effective digital literacy strategies and policies to support better public services.

To respond that challenges, The Government of Indonesia has introduced the SMART ASN program and mandated continuous technical competence development for civil servants through Law No. 5/2014 on the State Civil Apparatus and Government Regulation No. 17/2020. One of the flagship initiatives is the Digital Talent Scholarship (DTS) program organized by the Ministry of Communication and Digital (Komdigi) since 2018. Within this program, the Government Transformations Academy (GTA) specifically targets civil servants, military personnel, and police officers at central and local government institutions to enhance their information and digital literacy and to accelerate digitalization in the public sector.

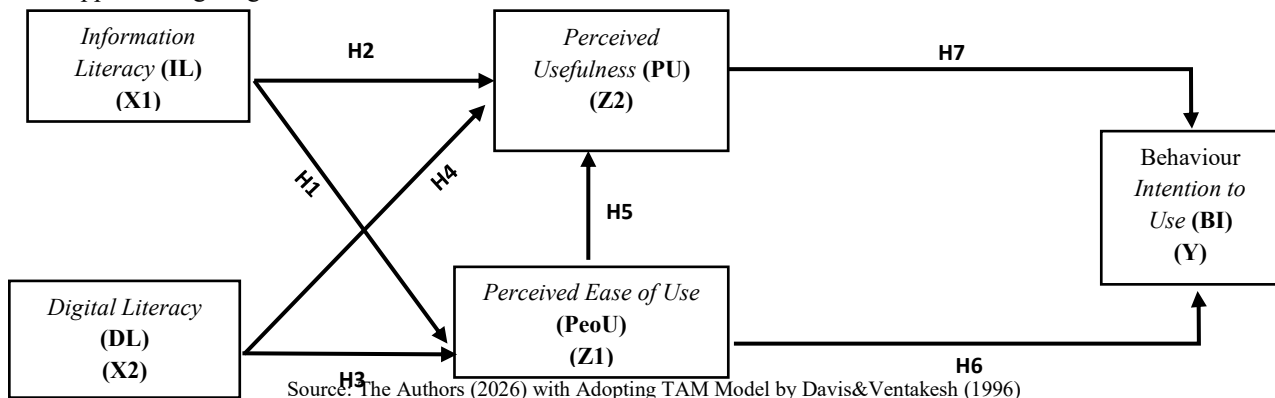
However, despite the broad coverage of the DTS GTA program in improving civil servants' information and digital literacy, empirical studies that examine how the literacy improvements translate into actual technology use in the workplace, particularly in local governments and in West Java Province was remain limited. Existing research on the DTS program largely focuses on aspects such as satisfaction with learning management systems among Thematic Academy participants (Sukma et al., 2020), the effects of gamification on learning and engagement level of DTS trainees (Prihatono & Sobandi, 2025), the effectiveness of DTS branding in increasing community digital literacy (Winarko et al., 2025), and the successfulness of DTS training through AutoML system (Prihatono & Dirgantari, 2025). Until today there is no specific study yet analyzing the relation of information literacy, digital literacy, and technology adoption in the workplace among civil servants who participated in DTS GTA training the context of the West Java Provincial Government.

Based on the BKN 2023's report, West Java Province has the third largest number of civil servants in Indonesia. Based on IMDI 2024 score, the Province of West Java obtained score of 43.34 classified as 'fair'. This indicates the extent of utilizing digital technology of public, including government sector, still need improvement. Some E-Government implementations in West Java, such as the SIMPATIK Jabar application was succesfull

(Fauzian et al., 2021), Permit application that utilizes adequate digital competent officials increases efficiency, transparency and satisfaction (Hamim et al., 2024), have demonstrated positive impacts on efficiency, transparency, and citizen satisfaction, and other applications have contributed to reducing illegal levies and improving real-time transparency in licensing processes by using Hay.u Bandung website and GAMPIL application (Dewi et al., 2024). Conversely, the Sapawarga super app has received public complaints indicating that technical, managerial, and communicative aspects of civil servants' digital literacy can hinder the quality of public service delivery (Nadzira et al., 2025). These contrasting examples highlight the critical role of civil servants' human resources particularly their information and digital literacy in determining the success or failure of digital government initiatives.

From a theoretical perspective, the Technology Acceptance Model (TAM) developed by Davis (1989) explains technology adoption based on perceived usefulness (PU) and perceived ease of use (PEOU), which influence users' behavioral intention to use technology. Later extensions of TAM have incorporated exogenous factors that shape users' beliefs about technology (Venkatesh & Davis, 1996). Recent studies suggest that information literacy and digital literacy are important workplace literacy variables that can act as antecedents of perceived ease of use and, in some cases, perceived usefulness (Nikou et al., 2022); (Chang et al., 2020); (Yu et al., 2017); (Alvino et al., 2021). Nevertheless, empirical evidence on the role of information literacy and digital literacy as exogenous factors in the TAM framework for civil servants in local government settings, particularly those who have participated in DTS GTA training, is still scarce.

This research was carried out to fill this gap between policy investments and training programs to enhance civil servants' information and digital literacy and the persistent challenges in implementing digital systems in local government workplaces. Specifically, the objectives of this study are: (1) to check the effects of information literacy on perceived usefulness and perceived ease of use of digital technologies among civil servants participating in the DTS GTA program; (2) to check the effects of digital literacy on perceived usefulness and perceived ease of use; and (3) to analyze the structural relationships within the TAM framework, particularly the effects of perceived usefulness and perceived ease of use on civil servants' behavioral intention to use digital technologies in the context of the West Java Provincial Government. By integrating information literacy and digital literacy as exogenous variables in the TAM framework, this study offers a novel perspective on how workplace literacy drives digital technology adoption among civil servants and provides empirical evidence for designing more effective competence development strategies in support of digital government.



**Figure 1. Research model and hypothes**

## METHOD

This research has used a quantitative approach was employed to investigate how information literacy and digital competencies on civil servants' usage intention of digital technology analyze with Technology Acceptance Model (TAM) framework. The research gathered data by using a structured questionnaire administered directly to civil servants that attended Digital Talent Scholarship Government Transformations Academy (DTS GTA) program

at West Java Province. Probability sampling, precisely proportionate stratified random sampling technique stratified by type of district/city were used in determining the sample, where the sample size targeted at 231 of 560 DTS GTA participants, 258 questionnaires successfully returned and analyzed.

The survey contained closed ended items and were rated using a five point Likert scale, which range from 1 (strongly disagree) to 5 (strongly agree). The construct to be measured consist of five latent constructs, namely: Information literacy, digital literacy, perceived ease of use, perceived usefulness and behavioural intention to use digital technologies. All indicators were derived from previous researchers and operational matrix developed with modification according to the situation of local government workplace in West Java. Questionnaires were distributed online through WhatsApp and Google Forms to civil servants who completed DTS GTA program and already worked in provincial and district level government offices in West Java Province. The civil servants are voluntary to participate in the research, they were already explained about the aim of the study, confidential of their personal data, the willingness to be a respondent, also obtained information consent form before doing the questionnaire, without any specific identification asked. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS version 4. The data analysis consisted of two stages. First the measurement model was analyzed in terms of reliability of individual items, convergent validity, discriminant validity and internal consistency (Hair et al.,2021). Secondly, the structural model was analyzed by estimation of path relationships. The path coefficients, t-values and p-values are produced through bootstrap resampling to determine the size and significance of hypothesised path relations. Finally the models R and Q values were calculated to provide evidence of the power of information competency and digital capability in their ability to explain perceived usability, perceived usefulness and intentions to use technologies (Hair et al.,2021).

**Table 1.** Indicator variable

| Variable                   | Indicators (summary)                                                                                                                                                                                                                                   | Scale           | Sources                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------|
| Information literacy (X1)  | 1. Ability to search information<br>2. Ability to obtain right information<br>3. Ability to identify reliable and appropriate sources of information                                                                                                   | Likert from 1–5 | Ng (2012)                              |
| Digital literacy (X2)      | 1. Cognitive abilities in the use of ICT<br>2. Abilities/ technical skills in the use of ICT<br>3. Social and emotional skills in the use of ICT                                                                                                       | Likert from 1–5 | (Nikou et al (2022)                    |
| Perceived ease of use (Z1) | 1. Perception of ease of learning<br>2. Perception of ease of being controlled or managed<br>3. Perceived ease of understanding<br>4. Perception of ease is not confusing<br>5. Perception of flexible usability<br>6. Perception of usability overall | Likert from 1–5 | Davis (1989); Venkatesh & Davis (1996) |
| Perceived usefulness (Z2)  | 1. Perceived increase in task completion speed<br>2. Perception of ease in working<br>3. Perception of improved work effectiveness<br>4. Perception of improvements in performance quality                                                             | Likert form 1–5 | Davis (1989); Venkatesh                |



| Variable                         | Indicators (summary)                                                                                          | Scale              | Sources                |
|----------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------|------------------------|
|                                  | 5. Perception of overall usefulness                                                                           |                    | & Davis (1996)         |
| Behavioural intention to use (Y) | 1. Intensity of planning use in work<br>2. Behavioral expectations usage<br>3. Intensity of use in the future | Likert form<br>1–5 | Venkatesh et al (2003) |

Source: The Authors (2026)

## RESULT AND DISCUSSION

### *Descriptive Analysis*

From the descriptive statistics indicates that most of the participants are productive aged civil servants and work in administrative, technical and public service posts in the offices of the provincial and local government administrations in West Java. Such a profile of the participants fits the significant function of civil servants to act as front line agents to carry out the government agenda on digital bureaucracy reform in Indonesia.

The mean score on both information literacy and digital literacy was in the range of medium to high, it means that the participants of the DTS GTA program had basic to intermediate information and digital literacy. This means that the participants can conduct simple ways of using digital technology, and retrieving, analyzing and using digital information in their work activities. However, the somewhat large value on the variation of some items which is indicated by "highly disagree" for the item related to the critical evaluation of information and usage of complicated systems. That indicates that civil servants do not equally have readiness on complex digital tasks. Such result is aligned with national studies finding that digital competence of civil servants is one of systemic bottlenecks for Indonesia's e-government system based on study SMERU Research Institute & Pathways at University of Oxford (2022) while competence tends to center at simple office works, there needs to be competencies to support data processing, automation, and analytics for better quality of public services.

**Table 2.** Respondent characteristics

| Characteristics                     | Frequency (people) | Percentage (%) |
|-------------------------------------|--------------------|----------------|
| <i>Gender</i>                       |                    |                |
| Male                                | 162                | 62,79          |
| Female                              | 96                 | 37,21          |
| <i>Respondent Age</i>               |                    |                |
| 21-30 years                         | 43                 | 16,67          |
| 31-40 t years                       | 106                | 41,09          |
| 41-50 years                         | 88                 | 34,11          |
| Above 50 years                      | 21                 | 8,14           |
| <i>Respondent Education</i>         |                    |                |
| High School/ Vocational High School | 8                  | 3,10           |
| Diploma III                         | 32                 | 12,40          |
| Bachelor's Degree/ Diploma IV       | 173                | 67,05          |

| Characteristics                                      | Frequency (people) | Percentage (%) |
|------------------------------------------------------|--------------------|----------------|
| Master's Degree                                      | 45                 | 17,44          |
| <i>Employment Status</i>                             |                    |                |
| Civil servants                                       | 134                | 51,94          |
| Government Contract Employee/ PPPK                   | 116                | 44,96          |
| Contract staff/ other temporary staff/ support staff | 8                  | 3,10           |
| <i>Place of work</i>                                 |                    |                |
| Kabupaten Bandung                                    | 49                 | 18,99          |
| Kabupaten Kuningan                                   | 88                 | 34,11          |
| Kabupaten Sumedang                                   | 44                 | 17,05          |
| Kabupaten Sukabumi                                   | 36                 | 13,95          |
| Kota Cirebon                                         | 41                 | 15,89          |

Source: The Authors (2026)

**Table 3.** Respondent Usage Profile

| Respondent Usage Profile                                                                     | Mean  |
|----------------------------------------------------------------------------------------------|-------|
| <i>Access to Digital Devices</i>                                                             |       |
| Smartphones                                                                                  | 4,633 |
| Tablets                                                                                      | 2,405 |
| Desktop Computers (PC)                                                                       | 3,556 |
| Laptops                                                                                      | 4,329 |
| Wearable Devices (e.g., Smartwatches)                                                        | 2,650 |
| Printers / Scanners                                                                          | 3,931 |
| <i>Frequency of Software Use</i>                                                             |       |
| Word Processors (e.g., Microsoft Word)                                                       | 4,397 |
| Spreadsheets / Data Tables (e.g., Microsoft Excel)                                           | 4,184 |
| Presentations (e.g., PowerPoint, Google Slides, Canva)                                       | 3,569 |
| Application for sharing tools (e.g., Google Drive, OneDrive, Dropbox)                        | 4,083 |
| Aplication for photo/image editing (e.g., Photoshop, Canva, Photoscape)                      | 3,557 |
| Aplication for Website management tools (e.g., WordPress)                                    | 2,775 |
| Online survey/form creation (Google Forms, etc.)                                             | 3,018 |
| Email Services (e.g., Gmail, Outlook)                                                        | 3,911 |
| Social Media (e.g., WhatsApp, Facebook, Instagram, etc.)                                     | 4,600 |
| Application for video Conferencing Apps for Online Meetings (Zoom, Google Meet, Skype, etc.) | 3,557 |

| Respondent Usage Profile                                                                                                              | Mean  |
|---------------------------------------------------------------------------------------------------------------------------------------|-------|
| Integrated Collaboration Platforms for communication, meetings, file sharing, and app usage all in one place (e.g., Google Workspace) | 3,025 |
| Learning Management System (LMS) Apps (e.g., Google Classroom)                                                                        | 2,735 |
| Artificial Intelligence (AI) Applications (e.g., ChatGPT, Perplexity, Gemini, etc.)                                                   | 3,798 |
| <i>Self-Assessment</i>                                                                                                                |       |
| Word Processors (e.g., Microsoft Word)                                                                                                | 4,014 |
| Spreadsheets / Data Tables (e.g., Microsoft Excel)                                                                                    | 3,951 |
| Presentations (e.g., PowerPoint, Google Slides, Canva)                                                                                | 3,862 |
| Application for sharing tools (e.g., Google Drive, OneDrive, Dropbox)                                                                 | 4,005 |
| Application for photo/image editing (e.g., Photoshop, Canva, Photoscape)                                                              | 3,582 |
| Application for website management tools (e.g., WordPress)                                                                            | 3,017 |
| Online survey/form creation (Google Forms, etc.)                                                                                      | 3,530 |
| Email Services (e.g., Gmail, Outlook)                                                                                                 | 3,954 |
| Social Media (e.g., WhatsApp, Facebook, Instagram, etc.)                                                                              | 4,252 |
| Application for video Conferencing Apps for Online Meetings (Zoom, Google Meet, Skype, etc.)                                          | 3,815 |
| Integrated Collaboration Platforms for communication, meetings, file sharing, and app usage all in one place (e.g., Google Workspace) | 3,345 |
| Learning Management System (LMS) Apps (e.g., Google Classroom)                                                                        | 3,238 |
| Artificial Intelligence (AI) Applications (e.g., ChatGPT, Perplexity, Gemini, etc.)                                                   | 3,772 |

Source: The Authors (2026)

**Table 4.** Descriptive Statistics of Research Variables

| Variables                    | N   | Min   | Max   | Mean  | Standard deviation |
|------------------------------|-----|-------|-------|-------|--------------------|
| Behavioural Intention (BI)   | 258 | 1,000 | 5,000 | 4.415 | 0,524              |
| Digital Literacy (DL)        | 258 | 1,000 | 5,000 | 4.076 | 0,570              |
| Information Literacy (IL)    | 258 | 1,000 | 5,000 | 4.313 | 0,456              |
| Perceived ease of Use (PeoU) | 258 | 1,000 | 5,000 | 4.341 | 0,632              |
| Perceived Usefulness (PU)    | 258 | 1,000 | 5,000 | 4.465 | 0,466              |

Source: The Authors (2026)

### Evaluation of the Measurement Model

**Table 5.** Outer/Faktor Loading, composite reliability

| Variables | Number of items | Outer/Faktor loading | Composite reliability | Cronbach's alpha | AVE |
|-----------|-----------------|----------------------|-----------------------|------------------|-----|
|-----------|-----------------|----------------------|-----------------------|------------------|-----|

|                              |   |               |       |       |       |
|------------------------------|---|---------------|-------|-------|-------|
| Behavioural Intention (BI)   | 6 | 0,836 - 0,906 | 0,955 | 0,943 | 0,778 |
| Digital Literacy (DL)        | 9 | 0,713-0,857   | 0,936 | 0,923 | 0,618 |
| Information Literacy (IL)    | 5 | 0,765-0,824   | 0,894 | 0,852 | 0,628 |
| Perceived ease of Use (PeoU) | 6 | 0,819-0,861   | 0,933 | 0,914 | 0,700 |
| Perceived Usefulness (PU)    | 5 | 0,852-0,919   | 0,954 | 0,940 | 0,806 |

Source: The Authors (2026)

**Table 6.** Result of discriminant validity (*HTMT ratio*)

| Variables                    | BI    | DL    | IL    | PEOU  | PU |
|------------------------------|-------|-------|-------|-------|----|
| Behavioural Intention (BI)   |       |       |       |       |    |
| Digital Literacy (DL)        | 0,709 |       |       |       |    |
| Information Literacy (IL)    | 0,730 | 0,778 |       |       |    |
| Perceived ease of Use (PeoU) | 0,828 | 0,792 | 0,760 |       |    |
| Perceived Usefulness (PU)    | 0,820 | 0,697 | 0,716 | 0,879 |    |

Source: The Authors (2026)

The first phase of validation (preliminary validation) dealt with the following four basic measures, item reliability, convergent validity, discriminant validity, and the internal consistency of constructs. All the items achieve factor loadings above the prescribed cut off point Hair et al (2021) which reflects the fact that each of the indicators has a strong relationship to the intended latent construct. All the constructs of information literacy, digital literacy, perceived ease of use, perceived usefulness, and behavioral intention had AVE values greater than the accepted standard, thus, all items met sufficient convergent validity and that all latent variables accounted for a large amount of the variance in their respective indicators. All of the five constructs have good to excellent internal consistency, as demonstrated by Cronbach's alpha and composite reliability values. Thus, it is reasonable to use the instrument in order to measure civil servants' literacy competencies and perceptions toward technology in workplace of government. Finally, as shown by all HTMT values calculated between the constructs pairs below conservative cut off points Henseler et al (2015), the empirical evidence supports discriminant validity of the indicators. Though theoretically situated within TAM framework, information literacy, digital literacy, perceived ease of use, perceived usefulness and behavioral intention exhibit empirically independent natures.

### Structural Model Evaluation

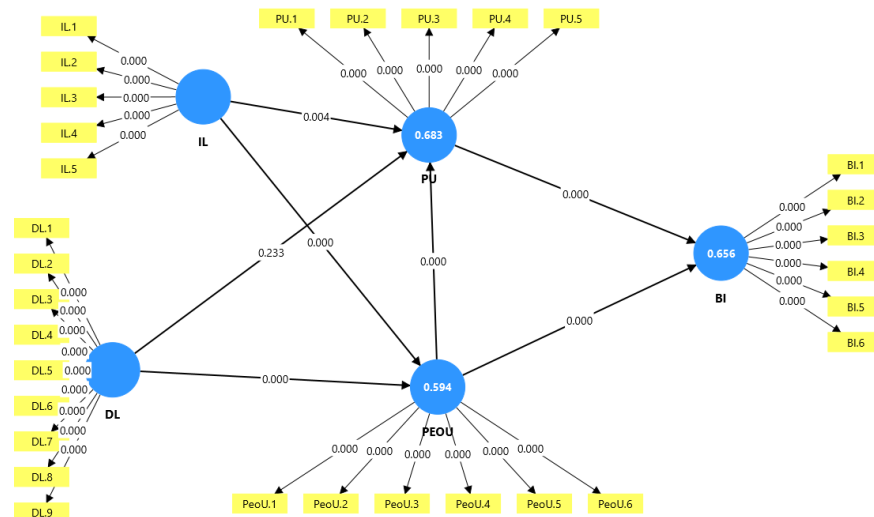
**Table 7.** Model quality indicators

| Endogen Variables            | R squared (R <sup>2</sup> ) | Cross-validated redundancy (Q <sup>2</sup> ) |
|------------------------------|-----------------------------|----------------------------------------------|
| Perceived ease of Use (PeoU) | 0,594                       | 0,587                                        |
| Perceived usefulness (PU)    | 0,683                       | 0,496                                        |
| Behavioural Intention (BI)   | 0,656                       | 0,501                                        |

Source: The Authors (2026)

The results from the structural model show that the adapted TAM holds significant power to explain and predict technology adoption for civil servants. All R and Q for perceived ease of use, perceived usefulness and behavioral intention are higher than common accepted values, and indicate information and digital literacy as central variables instead of background variables, working through the key perceptions above. The model clearly describes a behavioral linkage, information and digital literacy influence the perceive ease of use, which in turn affects the perceived usefulness and consequently the acceptance technology intention toward digital technology application in government work environment.





The endogenous variables show moderate to high level of explained variance on the structural model. Both information competence and digital competence predict a large amount of the variance on the perceived system accessibility, and information capability along with perceived accessibility predict a large amount of the variance on perceived utility. As seen, intent to adopt can be predicted reasonably well with the combined effects of perceived utility and ease of use, which adheres to the basic TAM propositions, therefore confirms the validity of modified TAM (incorporating information and digital competencies as exogenous factors) as a framework to investigate technology acceptance among civil servants in Indonesia. On the other hand, the left variation suggests that other organizational and institutional factors, e.g. Leadership support, established processes, and quality of system design, are also significantly influencing technology adoption by civil servants, but are not explicitly considered in this model.

**Table 8.** Hypothesis testing

| Path       | Coefficient ( $\beta$ ) | T statistics | P values | Result                       |
|------------|-------------------------|--------------|----------|------------------------------|
| IL -> PEOU | 0,307                   | 4,338        | 0,000    | H <sub>1</sub> Confirmed     |
| IL -> PU   | 0,146                   | 2,886        | 0,004    | H <sub>2</sub> Confirmed     |
| DL -> PEOU | 0,524                   | 7,978        | 0,000    | H <sub>3</sub> Confirmed     |
| DL -> PU   | 0,073                   | 1,194        | 0,233    | H <sub>4</sub> Not Supported |
| PEOU -> PU | 0,663                   | 10,849       | 0,000    | H <sub>5</sub> Confirmed     |
| PEOU -> BI | 0,416                   | 5,086        | 0,000    | H <sub>6</sub> Confirmed     |
| PU -> BI   | 0,434                   | 5,542        | 0,000    | H <sub>7</sub> Confirmed     |

Source: The Authors (2026)

Results from hypothesis testing suggests a clear causal structure that reveals several areas of vulnerability in Indonesia's digital bureaucracy. Both information competency and digital capability strongly positively impacts on the perceived ease of use, while only information competency has the same effect on perceived usefulness, digital capability is not found to have any influence. Strong positive relationship found between perceived ease of use and perceived functional utility, perceived functional utility and behavioral intention and perceived ease of use and behavioral intention also support the basic TAM structure within the public sector of Indonesia. Methodologically, these findings imply that ICT-driven digital bureaucracy reform in Indonesia must go hand in hand with improved information literacy, user-centric design, and bureaucratic reform of procedures and performance regime so that information capabilities of digital systems are fully realized and experienced by civil servants as useful.

## Discussions

### *Influence of Information Literacy on Perceived Ease of Use and Perceived Usefulness*

According to the empirical result, information competency has positively affects on perceived usability (PeoU) and perceived utility (PU). Such results validate the acceptance of H1 and H2. Based on this results, the main purpose of this study has achieved, which is exploring the effect of information competency on basic TAM variables among DTS GTA program users. As part of Technology Acceptance Model (TAM) framework, in this study, information literacy is an external variable which helps in forming the user's cognitive beliefs on the perceived ease of use and perceived usefulness of digital technology they are using (Davis, 1989); (Venkatesh & Davis, 1996). Civil servants being capable to retrieve, evaluate, and assimilate regulatory, administrative information, and public service data into their decisions, can learn the process of system operation quicker and at the same time benefit it as a helpful tools for solving bureaucracy tasks. The results supported Chang et al (2020) and (Yu et al (2017) who claimed that information literacy is positively associated with a system's attitude, performance and system adoption behaviors as well as strengthens the relationship between tech experience and system acceptance. This study further extended previous finding to Indonesian public bureaucracy context with complex regulations which differ from clinical and rural community context from previous research. Therefore, the study confirms information literacy is not an additional information literacy, but it is a conceptual framework in which easy and useful beliefs which form the core concept of TAM can be developed by civil servants.

### *Influence of Digital Literacy on Perceived Ease of Use and Perceived Usefulness*

The result shows that digital competence improves perceived usability, so H3 can be accepted. But digital competence did not appear to affect the perceived utility, so H4 was rejected. Although the second objective that investigates the influence of digital competence on PEOU and PU was completed, there are some important things that need to be stated, High digital competence improves perceive access of the system but does not improve perceived capability of the system to assist the work performance of the civil servants.

These results are consistent with the findings of Nikou et al (2022) and Jang et al (2021) who reported a significant relationship between digital literacy and perceived ease of use, but the effect on perceived usefulness and usage intent was found to be mixed. Contrary to those findings are the study by Kabakus et al (2023) who found a direct significant relationship between digital literacy and performance expectancy of higher education administrative staff. The conflicting results can be attributed to the unique characteristics of public organizations where enhancing technological skills through programs like DTS GTA did increase the civil servants belief that the application is easy to use but not yet useful if the system is still intertwined with manual processes, increase the burden of reporting, or still not well integrated with performance indicators. This conclusion suggests that although policy of enhancing digital literacy is the policy of the technical nature, it's also necessary that policy on design of the process and system should be also in consideration to comply digital system with the TAM concepts.

### *Influence Perceived Ease of Use and Perceived Usefulness on Behavioral Intention*

The outcomes from the structural analysis reveal that the PeoU affects the PU with high effect size, and significantly affects the BI. The conclusion provides the basis for the confirmation of H5 and H6. The result helps in addressing part of the third objective of this research that is testing the core structural path in TAM within the context of civil servants. From the perspective of the Technology Acceptance Model (TAM), when an information system is perceived as easy to learn, transparent in its operation, and not burdensome for users, it is more likely to be regarded as useful and to strengthen their intention to use the technology. (Davis, 1989); (Marangunić & Granić, 2015).

This phenomenon could explain why applications like SIMPATIK Jabar Fauzian et al (2021) and the various online permit services in West Java, whose interfaces and workflows fit well within the typical civil servants duties, tend to be easier for civil servants to use compared to system like Sapawarga which have a complex way of operating and lack of stability in terms of functioning in a bureaucratic environment (Nadzira et al., 2025). Empirically, these findings are consistent with many previous studies of TAM on the public and higher education sector, such as those of Fearnley (2020), Haliza et al (2019) and Elsayed & Shabbat (2022) all of which confirmed that perceived ease of use impacts perceived usefulness and behavioural intention of use. This study additionally makes an empirical

contribution by showing that the effect of on perceived usability (PeoU) is on the most direct path in the augmented TAM model which included literacy. This could suggest that the e-government system development in Indonesia ought to focus on usability as a key design principle for successful information technology deployment for civil servants in the operational level.

#### *Influence Perceived Usefulness to Behavioral Intention*

The results show that perceived usefulness significantly affects the technology adoption intention toward technology use. Therefore, the hypothesis H7 is supported and the overall objective is also achieved. Following TAM framework, perceived usefulness is closest predictor of behavioural intention since it demonstrates the extent to which civil servants perceive that using the digital technology can improve the quality of public service delivery at effective, efficient, quality points. When the civil servants find the information systems allow them to shorten the license processing speed, minimize data input errors and provide an clear audit trail, they will find clear logical reasons to use the system or continue using it. If they perceive that the system simply increases reporting procedures while not changing the output, then they will lack intention even if they are forced to use.

The findings further confirm the prior studies' that determine perceived usefulness is one of the main significant factor that influence on behavioural intention in e-learning context (Mailizar et al (2021); Anthony et al., (2023) and in construction technology adoption (Thoti, 2024); (Haliza et al., 2019) However, this study adds new evidence on the situation in the civil servants who participate DTS GTA contexts. Perceived usefulness is not only determined by the system quality, but also determined by the level of civil servants information literacy which will allow them to utilize system outputs to make accountable decision. Therefore, in this study the perceived usefulness and behavioural intention relationship can be explained by stating that success in adopting technologies in the digital bureau cannot depart from the role of civil servants which must be able to connect between the technologies' features and the public performance logic and accountability.

## CONCLUSION

This study validates that civil servants information literacy and digital literacy play an essential role in adopting digital technology at the workplace. Both found to increase usability (PeoU), while information literacy also directly improves perceived utility (PU). The strongest paths are the influence of usability on utility, followed by both construct's influence on behavioral intention. It means that civil servants is inclined to embrace and consistently apply the technology if they possess appropriate literacy ability, and they had a perception of the make system easy to use, as well as functional. Theoretically, this study adds the explanation for developing TAM on Indonesian public sector context by suggesting information and digital literacy as distinct external factors and important antecedents for usability and utility perception among civil servants.

Practically, government are suggested to enhance civil servants information literacy and digital literacy by developing structured and sustainable sequential the training program was not only targeting the application technical skills, but also ability to evaluate, manage and use information. The system and application design should prioritize ease of use and alignment with bureaucratic workflow to achieve positive experience towards technology, and hence stimulate continued usage intention. Limitation this study focuses on civil servants taking part in DTS GTA program in only one province over one period, therefore does not represent diverse organizational context and long term behavior change. Future research should conduct comparative study between regions with different levels of digital readiness, study long term behavior and literacy change with longitudinal design, and use mixed methods approach with survey and interview of respondent for deep understanding of subjective experience of civil servants in digital transformation process.

## REFERENCES

- Alvino, F., Di Vaio, A., Hassan, R., & Palladino, R. (2021). Intellectual capital and sustainable development: a systematic literature review. *Journal of Intellectual Capital Vol. 22* (1), 76–94.  
<https://doi.org/10.1108/JIC-11-2019-0259>

- Anthony, B., Kamaludin, A., & Romli, A. (2023). Predicting Academic Staffs Behaviour Intention and Actual Use of Blended Learning in Higher Education: Model Development and Validation. *Technology, Knowledge and Learning*, 28(3), 1223–1269. <https://doi.org/10.1007/s10758-021-09579-2>
- Chang, I. C., Lin, P. J., Chen, T. H., & Chang, C. H. (2020). Cultural impact on the intention to use nursing information systems of nurses in Taiwan and China: Survey and analysis. *Journal of Medical Internet Research Vol. 22* (8), 1-11. <https://doi.org/10.2196/18078>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Dewi, D. H., Yuningsih, N. Y., & Centia, S. (2024). Evaluasi E-Government dalam Pelayanan Perizinan Online Melalui Website HAY.U Bandung dan Aplikasi Gampil Tahun 2022. *Administrasi Pemerintahan (Janitra) Vol 4* (1), 46–61. <https://doi.org/10.24198/janitra.v4i1.52864>
- Elsayed, & Shabbat. (2022). Technology Acceptance Model As a Mediator Explaining Factors Affecting Online Education. *Arab Journal Of Administration*, 45(1), 317–336. <https://doi.org/10.21608/aja.2022.104817.1177>
- Fauzian, N. R., Tinggi, S., Administrasi, I., & Bandung, L. (2021). Innovation Model of Licensing Service SIMPATIK JABAR (Licensing Service Information System for the People of West Java). *Ilmu Administrasi*, 18(1), 28–43. <https://doi.org/10.31113/jia.v18i1.625>
- Fearnley, M. R. A. T. J. (2020). Learning Management System Adoption in Higher Education Using the Extended Technology Acceptance Model. *IAFOR Jurnal Of Education: Technology in Education*, 8(2), 89–106. <https://doi.org/10.22492/ije.8.2.05>
- Febriyanti, D., Widianingsih, I., Sumaryana, A., & Buchari, R. A. (2023). Information Communication Technology (ICT) on Palembang city government, Indonesia: Performance measurement for great digital governance. *Cogent Social Sciences*, 9(2), 1-21. <https://doi.org/10.1080/23311886.2023.2269710>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Springer International Publishing. <https://doi.org/10.1007/978-3-030-80519-7>
- Haliza, Feruz A, Irena, & Hezrizah. (2019). Behaviour Intention Among Property Developer Employees to Adopt Technology Application at Workplace. *KnE Social Sciences*, 3(14), 304-324. <https://doi.org/10.18502/kss.v3i14.4317>
- Hamim, R. N., Meidiana, A., Helmi, C., & Nurdin, N. (2024). Dampak Implementasi E-Government Terhadap Kepuasan Masyarakat Dalam Pelayanan Publik di Desa Sukajaya. *Indonesian Journal of Public Administration Review*, 1(3), 1-16. <https://doi.org/10.47134/par.v1i3.2800>
- Herwanto, S. T., Rohmansyah, H., Daga, A. K., & Roflebabbin, G. (2024). Kompetensi Aparatur Sipil Negara di Era Digital Sebuah Kerangka Konseptual. *Jurnal Ilmu Administrasi*, 15(2), 201–209. <https://doi.org/10.23969/kebijakan.v15i02.6582>
- Isabella, Agustian, E., Baharuddin, T., & Ibrahim, A. H. H. (2025). Bridging E-Government with Digital Literacy: A Literature Review. *Journal of Governance and Regulation*, 14(1), 361–371. <https://doi.org/10.22495/jgrv14i1siart12>
- Jang, M., Aavakare, M., Nikou, S., & Kim, S. (2021). The impact of literacy on intention to use digital technology for learning: A comparative study of Korea and Finland. *Telecommunications Policy*, 45(7), 1-13. <https://doi.org/10.1016/j.telpol.2021.102154>
- Kabakus, A. K., Bahcekapili, E., & Ayaz, A. (2023). The effect of digital literacy on technology acceptance: An evaluation on administrative staff in higher education. *Journal of Information Science*, 1-12. <https://doi.org/10.1177/01655515231160028>
- Kementerian Komunikasi dan Digital Republik Indonesia. (n.d.). *Buku Visi Indonesia Digital 2045*.



- Mailizar, M., Burg, D., & Maulina, S. (2021). Examining university students' behavioural intention to use e-learning during the COVID-19 pandemic: An extended TAM model. *Education and Information Technologies Vol. 26* (6), 7057–7077. <https://doi.org/10.1007/s10639-021-10557-5>
- Marangunić, N., & Granić, A. (2015). Technology acceptance model: a literature review from 1986 to 2013. *Universal Access in the Information Society*, 14(1), 81–95. <https://doi.org/10.1007/s10209-014-0348-1>
- Nadzira, R., Shafa, Z., & Herliana, A. (2025). Analisis Sentimen Pengguna Aplikasi Sapawarga Jabar *Super Apps* Menggunakan Algoritma *Support Vector Machine*. *Jurnal Teknologi Informasi*, 6(2). <https://doi.org/10.46576/djtechno>
- Ng, W. (2012). Can we teach digital natives digital literacy? *Computers and Education*, 59(3), 1065–1078. <https://doi.org/10.1016/j.compedu.2012.04.016>
- Nikou, S., De Reuver, M., & Mahboob Kanafi, M. (2022). Workplace literacy skills—how information and digital literacy affect adoption of digital technology. *Journal of Documentation*, 78(7), 371–391. <https://doi.org/10.1108/JD-12-2021-0241>
- OECD. (2024). *Survei Ekonomi OECD Indonesia 2024* (OECD Economic Surveys: Indonesia, Vol. 2024). OECD Publishing. <https://doi.org/10.1787/9d9fdbd2-id>
- Prihatono, K., & Dirgantari, P. D. (2025). User Acceptance and Effectiveness of AutoML Systems in Predicting Training Success: A Case Study of the DTS Program. *Jurnal Pekommas*, 10(1). <https://doi.org/10.56873/jpkm.v9i1.5909>
- Prihatono, K., & Sobandi, A. (2025). The Role of Gamification in Digital Workforce Training: A Case Study of Knowledge Retention and Engagement In Cloud Computing Training Course. *Eduvest-Journal of Universal Studies*, 5(6), 6055–6066. <http://eduvest.greenvest.co.id>
- Rumata, V. M., & Nugraha, D. A. (2020). Rendahnya tingkat perilaku digital ASN kementerian kominfo: Survei literasi digital pada instansi pemerintah. *Jurnal Studi Komunikasi (Indonesian Journal of Communications Studies)*, 4(2), 467–484. <https://doi.org/10.25139/jsk.v4i2.2230>
- SMERU Research Institute, T., & Pathways at University of Oxford, D. (2022). *Diagnostic Report: Digital Skills Landscape in Indonesia*. [www.smeru.or.id](http://www.smeru.or.id)
- Sukma, A. A. Y., Kusumawardani, D. Q., & Wijaya, P. F. (2020). The Influence of Satisfaction Using Learning Management System on the Competencies of Digital Talent Scholarship Thematic Academy Participants. *In 2nd International Conference Innovation in Education (ICoIE 2020)*, 504, 247–252. <https://doi.org/10.2991/assehr.k.201209.228>
- Thoti, K. K. (2024). Exploring the employees' behavioral intention towards disruptive technologies: A study in Malaysia. *Human Resources Management and Services*, 6(1), 1–16. <https://doi.org/10.18282/hrms.v6i1.3399>
- Venkatesh, V., & Davis, F. D. (1996). A Model of the Antecedents of Perceived Ease of Use: Development and Test. *Decision Sciences*, 27(3), 451–481. <https://doi.org/10.1111/j.1540-5915.1996.tb00860.x>
- Venkatesh, V., Smith, R. H., Morris, M. G., Davis, G. B., Davis, F. D., & Walton, S. M. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Winarko, B., Hurriyati, R., & Hendrayati, H. (2025). Branding of the Digital Talent Scholarship Program as a Strategy for Strengthening Indonesia's Digital Talent, *Proceedings of the 9th Global Conference on Business, Management and Entrepreneurship (GCBME 2024) Advances in Economics, Business and Management Research*, 648–653. [https://doi.org/10.2991/978-94-6463-817-2\\_75](https://doi.org/10.2991/978-94-6463-817-2_75)
- Yu, T. K., Lin, M. L., & Liao, Y. K. (2017). Understanding factors influencing information communication technology adoption behavior: The moderators of information literacy and digital skills. *Computers in Human Behavior*, 71, 196–208. <https://doi.org/10.1016/j.chb.2017.02.005>