Understanding Information System Continuance Intention In The Indonesian Public Sector

Adi Prasetyo[1, *], Muhammad Irfan Syaebani [2]

[1,2] Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, Indonesia
Correspondence: cassanovadi@gmail.com

Abstract
Employing the framework of the Expectation Confirmation Model within the Indonesian public sector context. This research endeavoured to explore the impact of satisfaction, self-efficacy, perceived usefulness, enjoyment, and confirmation on the continuance intention of information systems. The study engaged 436 employees from the Indonesian State Revenue Organization as participants. Utilizing a 7-point Likert scale, online surveys were administered to collect data, subsequently subjected to analysis employing Lisrel 8.8 and Structural Equation Modelling (SEM). The results suggested that self-efficacy and confirmation were strong predictors of perceived usefulness. There existed a strong and positive association between confirmation and satisfaction, perceived usefulness and satisfaction as well as enjoyment and satisfaction. Satisfaction acted as a partial mediation variable between perceived usefulness and continuance intention as well as between enjoyment and continuance intention. Hereafter, the relationship between self-efficacy and continuance intention was influenced by perceived usefulness as the indirect-only mediator. In addition, the relationship between confirmation and continuance intention was influenced by satisfaction as the indirect-only mediator. Ultimately, the continuance intention in information systems was strongly associated with satisfaction, enjoyment, and perceived usefulness.

Abstrak
Dengan menggunakan model konfirmasi ekspektasi dalam konteks sektor publik di Indonesia, penelitian ini berusaha untuk mengeksplorasi dampak dari kepuasan, efikasi diri, persepsi kegunaan, kenikmatan, dan konfirmasi terhadap intensi kelanjutan penggunaan sistem informasi. Penelitian ini melibatkan 436 pegawai dari Organisasi Pendapatan Negara Indonesia sebagai partisipan. Dengan menggunakan skala Likert 7 poin, survei online dilakukan untuk mengumpulkan data, kemudian dianalisis dengan menggunakan Lisrel 8.8 dan Structural Equation Modelling (SEM). Hasilnya menunjukkan bahwa bahwa efikasi diri dan konfirmasi merupakan prediktor kuat dari persepsi kegunaan. Terdapat hubungan yang kuat dan positif antara konfirmasi dan kepuasan, persepsi kegunaan dan kepuasan, serta kenikmatan dan kepuasan. Kepuasan bertindak sebagai variabel mediasi parsial dalam hubungan antara persepsi kegunaan dan intensi kelanjutan penggunaan serta antara kenikmatan dan intensi kelanjutan penggunaan. Selanjutnya, hubungan antara efikasi diri dan intensi kelanjutan penggunaan dipengaruhi oleh persepsi kegunaan sebagai mediator tidak langsung. Selain itu, hubungan antara konfirmasi dan intensi kelanjutan penggunaan dipengaruhi oleh kepuasan sebagai mediator tidak langsung Pada akhirnya, intensi kelanjutan penggunaan sistem informasi sangat terkait dengan kepuasan, kenikmatan, dan persepsi kegunaan.

INTRODUCTION

The issue of ICT continuance intention remains a compelling and complex subject for investigation (Alruwaie et al., 2020; Rahimullah et al., 2022). A study conducted by Pereira & Tam (2021) has demonstrated that the effectiveness and long-term viability of ICT strategies are contingent upon the sustained use of ICT following its first adoption, rather than solely on the initial acceptance itself. Currently, researchers are investigating the factors that impact technology during the stages before adoption (Chahal & Rani, 2022; Yuduang et al., 2022) and after adoption (Alshammari, 2023; Jangir et al., 2022; Pereira & Tam, 2021; Shiau et al., 2020). The utilization of online services, specific ICT applications, and emerging technologies within the public sector has often been observed to be limited (El-Haddadeh et al., 2019). Addressing this issue, Capistrano et al. (2023) are conducting research aimed at comprehending the factors contributing to the underutilization of ICT, particularly in less explored regions. Their investigation focuses on examining the influence of self-efficacy and hedonic incentives on individuals' intentions to utilize e-commerce platforms. Furthermore, prior research underscores the significance of the post-adoption stage (Bhattacherjee, 2001). The efficacy of information systems (IS) and their impact across economic, social, and political domains largely hinges on continued usage by users, beyond mere acceptance or initial implementation phases (Alruwaie et al., 2020). While previous research predominantly concentrated on the acceptance of Information Technology (IT), recent studies have illuminated the importance of sustained utilization of IT for the long-term viability of Information Systems (IS) (Nascimento et al., 2018).

Indonesia was placed 77th out of 193 countries in the world in the United Nations' e-government survey of 2022, moving up 11 spots from 88th place in 2022 (United Nations, 2022). Domestically, through the Ministry of State Apparatus Empowerment and Bureaucratic Reform (PANRB), Indonesia has carried out an Electronic-Based Government System (SPBE) evaluation of government agencies, ministries, and institutions at both the central and regional levels. In 2023, the overall National SPBE received a score of 2,79 (on a scale of 1-5) in the good category, however, of the 621 agencies assessed, there were still 186 that received sufficient scores and 43 that received poor scores (MenPANRB, 2024). It is thought that Indonesia's EGDI ranking is still low because the majority of Indonesians have never accessed public services online. This can be seen from the survey report of the Ministry of Communication and Information together with the Katadata Insight Center (KIC), which shows that the majority, or 72% of respondents have never used the internet to access public services. Then 13,40% of participants said they rarely, and 10,30% very rarely access public services online. Only 3,80% of participants admitted frequent utilisation of the the internet, and 0.50% of respondents very often use the internet to access public services (Katadata, 2022). This fact supports research results which state that online services, certain ICT applications, and innovative technologies in the public sector context are often underutilized (El-Haddadeh et al., 2019).

Organisasi Pendapatan Negara (OPN), a work unit under the Ministry X as an agency that received an SPBE score of 4,66 (satisfactory) is also not free from ICT management problems. The OPN Information System is an information system that OPN's employees use

internally to offer public services in terms of taxation. According to the OPN Annual Report, there is a downward trend in the organisational performance achievement index related to reliable information system KPIs from 2019 to 2022, namely 120%, 118,83%, 117,47%, and 111,70% (Organisasi Pendapatan Negara, 2020, 2021, 2022, 2023). This was reinforced by the explanation that the OPN information system currently used has reduced reliability, reduced infrastructure resilience, and does not cover all integrated business processes, so it is not surprising that there are many complaints from taxpayers regarding system slowdowns or system errors occurring when income tax return reporting is due (Monowida, 2023). The Expert Staff of Tax Oversight, also stated that the current tax administration system is quite outdated as it is almost two decades old (Media Keuangan, 2023). A decrease in the reliability of a system can have a negative impact on the user's perception of the usefulness of the system, which in turn reduces the user's desire to continue using the information system continuously (Davis, 1989). Hence, it is crucial to investigate the determinants of continuance intention among OPN employees in order to identify the aspects that enhance their willingness to utilise information technology within the workplace.

Considerable research has been undertaken within the private sector across diverse domains to explore the predictors influencing the continuance intention in the use of technology. These domains encompass financial technology, metaverse-based learning platforms, web-based applications, e-learning, video-on-demand services, and cloud financial information systems. Investigations by Shiau et al. (2020), Al-Adwan et al. (2023), Alyoussef (2023), Suzianti & Paramadini (2021), Pereira & Tam (2021), and Li & Wang (2021) have contributed significantly to this research realm. Nevertheless, a dearth of studies exists that specifically scrutinizes the adoption of information systems within the public sector, with a focal point on public personnel as the subjects of inquiry. Another study delved into investigating the factors affecting individuals' intention to persist in using m-government services in Saudi Arabia, employing the ECM theoretical framework and the IS Success Model (Alshammari, 2023).

This research is different from previous research. This research develops and validates a theoretical framework that integrates the expectation confirmation model, hedonic motivation, and self-cognitive theory to elucidate the determinants impacting employees' inclination to persist in utilizing information technologies within the public sector. This study seeks to offer insights into the comprehension and evaluation of the prolonged utilisation of information systems. In this scenario, it is necessary to identify the determinants that impact the utilisation of resources by individuals, namely public sector personnel. This research aims to develop comprehensive explanations of the sustainable behaviour process by formulating concepts and conducting empirical tests on theoretical models. Moreover, this research provides a crucial viewpoint for governments to comprehend the long-term functioning of information systems. This observation endeavors to examine the effect of enjoyment, self-efficacy, perceived usefulness, confirmation, and satisfaction on the intention to continue using technology within the public sector, employing the expectation confirmation model approach. The research draws upon existing literature in this area of knowledge.

Expectation Confirmation Model (ECM)

An accurate explanation of the tendency to continue making use of information systems (IS) is provided by the Expectation Confirmation Model (ECM), which comes with a number of advantages, as evidenced by research conducted by Bhattacherjee (2001), Hong et al. (2006), and Thong et al. (2006). ECM is derived from the expectation-confirmation theory (ECT) first forth by Oliver (1980). It converted the disparity between actual performance and anticipated expectations into a post-acceptance framework for sustained information system utilization. The ECM Model posited that users' cognitive perceptions directly influence their motivation to persist in using the Information System. According to the ECM theory, users' continued intention is shaped by their evaluations of the usefulness of the adopted technology, their inherent level of confirmation, and their satisfaction with the information system (Bhattacherjee, 2001; Lee, 2010). The ECM model continues to be prevalent in recent studies across various contexts (Franque et al., 2020; Shiau et al., 2020; Suzianti & Paramadini, 2021). This validated framework has been widely employed by numerous researchers in the Information Systems field to investigate the user behavior of different Information Systems post-adoption (Islam et al., 2023; Tam et al., 2020). The ECM model is often integrated with other models such as self-efficacy (Suzianti & Paramadini, 2021; Yang, 2024), social cognitive theory (Shiau et al., 2020), hedonic motivation (Pereira & Tam, 2021; Tam et al., 2020), as well as utilitarian and hedonic motivation (Akdim et al., 2022) to achieve a comprehensive understanding of post-adoption behavior.

Social Cognitive Theory (SCT)

An individual's opinion of their technological skill can also influence the adoption and utilisation of technology. Bandura (1986) posited that self-efficacy constitutes a fundamental element of social cognitive theory. Self-efficacy pertains to an individual's belief in their capability to effectively perform a task, significantly shaping their work-related attitudes. Individuals possessing high self-efficacy for a particular task are more inclined to initiate and persist in that task compared to those with lower self-efficacy (Bandura, 1997). Bandura (1986) observed that four specific types of experiences contribute to both the development and perpetuation of self-efficacy. Numerous studies, including those performed by Alruwaie et al. (2020), Leon (2018), and Shiau et al. (2020), have affirmed the pivotal role of self-efficacy in influencing individuals' intentions to utilize technology.

Hedonic Motivation

Several years after Davis et al. (1992) proposed the original model of the Technology Acceptance Model (TAM), researchers introduced a new construct termed Perceived Enjoyment (PE) into the model. Enjoyment, as defined by Davis et al. (1992), denotes the subjective experience of finding computer use enjoyable, independent of the anticipated performance outcomes. This investigation illustrates the association between the level of satisfaction and the acceptance of computers among users in professional contexts. Hereafter, Van Der Heijden (2004) explored the determinants influencing the propensity to utilize various types of Information Systems. Under certain circumstances, when Information Systems (IS) prioritize hedonic pleasure, the predictive capability of perceived usefulness diminishes in forecasting intentions to use diverse types of Information Systems, in contrast to other factors such as Enjoyment. Hedonic Motivation, characterized by the perception of enjoyment, is a prominent factor examined in recent studies across numerous contexts (Franque et al., 2020; Pereira & Tam, 2021; Rekha et al., 2023).

This study integrates the constructs of enjoyment and self-efficacy into the ECM framework to evaluate their influence on continuance intention of Information Systems. Additionally, it develops a theoretical model emphasizing the role of enjoyment and self-efficacy in enhancing continuance intention. Several research hypotheses were formulated and analyzed to validate these findings. Figure 1 illustrates the research model.

Hypotheses Development

Self-efficacy refers to an individual's subjective assessment of their capability to effectively perform a specific task (Bandura, 1982). According to (Chahal & Rani, 2022), self-efficacy positively impacts the perceived ease of use and perceived usefulness when utilizing an online learning system. Yang (2024) identified self-efficacy as a significant predictor of perceived usefulness. Consequently, the hypothesis we propose is:

H1.   Self-efficacy (SE) has a positive effect on perceived usefulness (PU)

Furthermore, individuals with heightened technological self-efficacy exhibit a greater propensity to embrace and adopt technological innovations compared to those with lower levels of technological self-efficacy (Compeau & Higgins, 1995). The confirmation in the domain of fintech application usage is strongly influenced by technological self-efficacy, as evidenced by the study performed by (Shiau et al., 2020). Hence, the hypothesis we propose is as follows:

H2.   Self-efficacy (SE) has a positive effect on Confirmation (CON)

Confirmation, based on Oghuma et al. (2016), is defined as the extent to which actual usage in the real world matches an individual's initial expectations. Findings from a study by Mao et al. (2023) indicated that confirmation exerts a positive and substantial influence on the perceived usefulness and satisfaction of government app users. Thus, the hypothesis we propose is as follows:

H3.   Confirmation (CON) has a positive effect on Perceived Usefulness (PU)

The extent of confirmation influences satisfaction levels (Yuan et al., 2016). Notably, confirmation exerts a significant and positive impact on satisfaction in the context of utilizing fintech applications (Shiau et al., 2020) and cloud-based hospital information systems (Pereira & Tam, 2021). Therefore, we propose the following hypothesis:

H4.   Confirmation (CON) has a positive effect on Satisfaction (SAT)

Perceived usefulness, according to Davis (1989), refers to the degree to which an individual believes that using a particular system will improve their job performance. The investigation conducted by Shiau et al. (2020) reveals that the perceived usefulness of fintech applications profoundly impacts user satisfaction. Similarly, Alshammari (2023) concluded that the perceived usefulness of M-Government usage has a strong influence on the level of satisfaction experienced by users. Hence, the hypothesis we propose is:

H5.   Perceived Usefulness (PU) has a positive effect on Satisfaction (SAT)

According to Bhattacherjee (2001), continuance intention is defined as the user's desire to continue using the information system. Based on Cheng (2020) investigation, when utilizing a cloud-based hospital information system, the perceived usefulness also exerts a substantial and positive impact on the continuance intention. Furthermore, perceived usefulness positively

impacts the continuance intention in using an online learning system (Li et al., 2022). The ensuing hypothesis is formulated:

H6. Perceived Usefulness (PU) has a positive effect on continuance intention (CI)

Perceived enjoyment refers to the extent to which the act of utilizing a specific system is perceived as pleasurable in and of itself, independent of the outcomes resulting from its use (Venkatesh, 2000). Research by Lu et al. (2017) and Pereira & Tam (2021) has furnished evidence highlighting the pivotal role of enjoyment in determining satisfaction. Moreover, research conducted by Foroughi et al. (2023) has indicated that enjoyment serves as a significant predictor of satisfaction. Hence, we posit the following hypothesis:

H7. Enjoyment (ENJ) has a positive effect on satisfaction (SAT)

In predicting the continuance intention of metaverse-based learning technology, perceived enjoyment plays a pivotal role (Al-Adwan et al., 2023). Hereafter, the degree of enjoyment predicted the propensity to continue using Social Networking Services, as indicated by a study conducted by Jo (2022). Thus, the following hypothesis is formulated:

H8. Enjoyment (ENJ) has a positive effect on continuance intention (CI)

Bhattacherjee (2001) contended that the satisfaction level consumers derive from their prior usage of information systems (IS) significantly influences their inclination to continue using IS. The satisfaction of users exerts a substantial impact on their continuance intention to persist in using a product or service, as evidenced by studies conducted by Kamble et al. (2024), Nguyen & Dao (2024), and Rekha et al. (2023). Hence, we propose the following hypothesis:

H9. Satisfaction (SAT) has a positive effect on continuance intention (CI)

Liao et al. (2018) emphasized that perceived usefulness and perceived ease of use act as mediators in the relationship between self-efficacy and users' propensity to adopt the system. Shiau et al. (2020) conducted research revealing a positive and significant correlation between technical self-efficacy and perceived usefulness. They also discovered a similar relationship between perceived usefulness and continuance intention. This suggests that perceived usefulness may function as a mediator in the relationship between these factors. Thus, the hypothesis we propose is as follows:

H10. Perceived usefulness (PU) mediates the influence of self-efficacy (SE) on continuance intention (CI)

Pereira & Tam (2021) discovered that satisfaction acts as a mediator in the relationship between enjoyment and continuance intention, as evidenced by path coefficient values. Thus, our proposed hypothesis is as follows:

H11. Satisfaction (SAT) mediates the influence of Enjoyment (ENJ) on Continuance Intention (CI)

Rahimullah et al. (2022) and Pereira & Tam (2021) posited that satisfaction mediates the association between enjoyment and continuance intention. This indicates the potential for satisfaction to act as a mediator in the interplay among these variables. Therefore, our proposed hypothesis is as follows:

H12. Satisfaction (SAT) mediates the influence of perceived usefulness (PU) on continuance intention (CI)

In their examination of technology usage in the government sector, Mao et al. (2023) identified a significant indirect influence of satisfaction on the association between confirmation and continuance intention. In light of this, it can be deduced that satisfaction can play the role of a mediator in the connection between these two factors. Therefore, the hypothesis we propose is as follows:

H13. Satisfaction mediates the influence of confirmation on continuance Intention
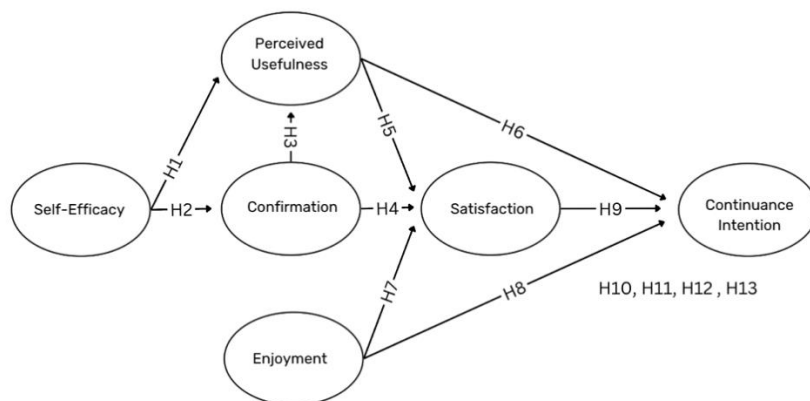
Figure 1. Research Model

METHODS

This study employed a quantitative methodology and collected data through an online questionnaire. To assess the questionnaire's effectiveness, a readability test and a pre-test were conducted. The pre-test involved 30 respondents, comprising 23 males (76%) and 7 females (23%). The pre-test data were analyzed using SPSS 29 software to calculate Factor Loadings, Cronbach's Alpha value, and the Kaiser Meyer Olkin value. All items in the pre-test exhibited factor loadings greater than 0.5 and were grouped into a single component (Hair et al., 2019). Data processing produced KMO values the Kaiser Meyer Olkin (KMO) values that ranged from 0.663 to 0.838. It indicated moderate to high sampling adequacy. Similarly, the Measure of Sampling Adequacy (MSA) values ranged from 0.819 to 0.977, indicating good to excellent sampling adequacy. Cronbach's Alpha, used to assess construct validity, ranged from 0.895 to 0.977, surpassing the threshold of 0.6 (Hair et al., 2019). The pre-test results confirmed the reliability and validity of this instrument. The processing and analysis of quantitative data involved a sequential procedure, which utilises Lisrel 8.8, IBM SPSS Statictics 29, and Microsoft Excel.

This study used an internet-based survey tool that comprises three sections. The questionnaire link was disseminated over WhatsApp and OPN's research application. The initial inquiry serves as a screening measure to verify that the participant is both a SIOPN user and a civil servant in OPN. The second section comprises inquiries about the respondent's identity. The final segment has measurement items consisting of 25 statements and 2 open-ended questions. The responses were categorized based on a Likert scale spanning from 1 to 7. Here, 1 indicated "strongly disagree," 2 represented "disagree," 3 denoted "somewhat disagree," 4

signified "neutral," 5 denoted "somewhat agree," 6 indicated "agree," and 7 represented "strongly agree". The assessment of enjoyment is conducted by a questionnaire of four elements suggested by Leon (2018). Self-efficacy is assessed using indicator variables, as proposed by Leon (2018), with a total of 4 questionnaire items. Davis (1989) identified six question items as markers of Perceived Usefulness. Confirmation is assessed using four statements put out by Pereira & Tam (2021). Assessment of satisfaction is conducted using a metric developed by Cheng (2020). Continuance Intention is evaluated by employing three items originally developed by Bhattacherjee (2001).

RESULTS AND DISCUSSION
Descriptive Analysis
We obtained survey responses between February 26, 2024 and March 08, 2024. We acquired a total of 491 participants, although only 436 of them furnished legitimate and comprehensive answers. The proportion of male and female respondents was 74% and 26%, aged between less than 25 and more than 50 years old, had a working period of 5 to more than 20 years, and had an education level of diploma I to master's degree. Futhermore, the majority respondents came from tax employees that are based at the Java Island and worked as tax auditor.

Validity and Reliability
The validity of all variables in this research underwent evaluation through Confirmatory Factor Analysis (CFA), which entailed the examination of the output values of the Standard Loading Factor (SLF) for any indicator concerning its respective latent variable. Furthermore, the factors examined included ENJ (Enjoyment), SE (Self-efficacy), PU (Perceived Usefulness), CON (Confirmation), SAT (Satisfaction), and CI (Continuance Intention). CFA served to establish the correlation between observed measurements or indicators and latent variables. The utilisation of confirmatory factor analysis (CFA) verified that the variables that were tested adequately represented the constructs on the level of accuracy that was required (Hair et al., 2019). From the beginning, it was expected that the SLF values for every variable item would be greater than 0.5. If the SLF value is less than 0.5, it would indicate that the item is unlikely to be legitimate. All the variables are valid because the SLF values for any of the 25 statement indicators are greater than 0.50.

Hair et al. (2019) provided a guideline stating that a composite reliability (CR) value higher than 0.7 and an average variance extracted (AVE) value more than 0.5 indicate a good degree of measurement quality. The result of CR ranged from 0,8642 to 0,9680. Furthermore, the result of AVE ranged from 0,6198 to 0,8799. It can be inferred that all of the validity and reliability instruments satisfied the criteria set by Hair et al. (2019).

Goodness of Fit
In the GOF analysis for the structural model, two absolute fit measures satisfy the specified criteria: RMSEA = 0,074 and SRMR 0,057. Hereafter, five indications fall within the incremental range and have a good fit. They are NFI = 0,98, NNFI = 0,98, CFI = 0,99, RFI = 0,98 and IFI = 0,99. Moreover, there is one specific value that accurately corresponds to the suitability of the parsimony indices, which is PNFI = 0,87. A model is deemed good if it attains

a benchmark value ranging from 3 to 4 for the specified indices, provided that the researcher verifies the presence of at least one indicator of goodness-of-fit in each group of goodness-of-fit indices (Hair et al., 2019). This structural model is considered to be a good-fit model since it meets 8 reference values for the specified indices, and it includes at least one indicator of goodness-of-fit in each group of goodness-of-fit indices (Hair et al., 2019).

Hypothesis Testing

Figure 2 and Table 1 display all pairs of variables that have t-statistics values exceeding 1,645, The statement suggests that out of the thirteen associations, all of them have been determined to be statistically significant according to Hair et al. (2019). The pairs comprise of SE to PU, SE to CON, CON to PU, CON to SAT, PU to SAT, PU to CI, ENJ to SAT, ENJ to CI, and SAT to CI. The correlation between SE and CON has the highest path coefficient, whereas the association between CON and SAT has the highest t-statistic value. Conversely, the t-statistic value for the direct link between ENJ and CI is the lowest.
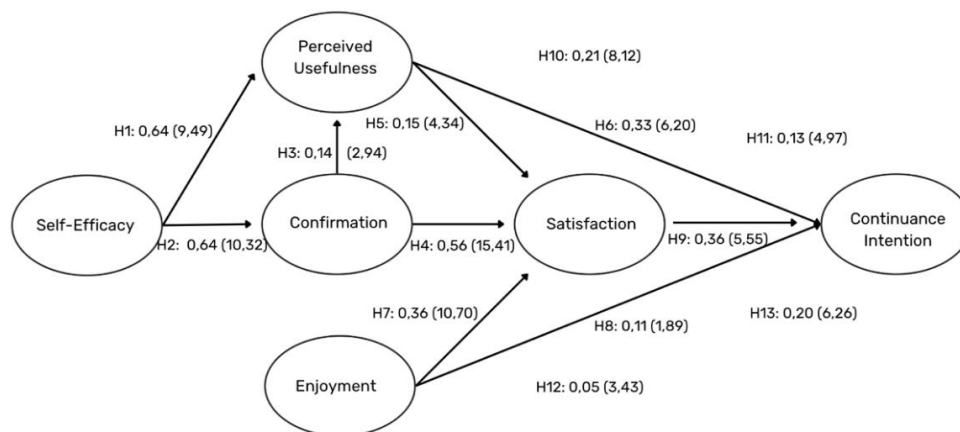
Figure 2. Patch Coefficient and t-value of Hypothesized Model

Table. 1
Direct and Indirect Effect Test Result

Hypothesis	Correlation	Path Coefficients	t-value	Result
H1	SE → PU	0,64	9,49	Supported
H2	SE → CON	0,64	10,32	Supported
H3	CON → PU	0,14	2,94	Supported
H4	CON → SAT	0,56	15,41	Supported
H5	PU → SAT	0,15	4,34	Supported
H6	PU → CI	0,33	6,20	Supported
H7	ENJ → SAT	0,36	10,70	Supported
H8	ENJ → CI	0,11	1,89	Supported
H9	SAT → CI	0,36	5,55	Supported
H10	SE → PU → CI	0,21	8,12	Supported
H11	ENJ → SAT → CI	0,13	4,97	Supported
H12	PU → SAT → CI	0,05	3,43	Supported

Hypothesis	Correlation	Path Coefficients	t-value	Result
H13	CON → SAT →CI	0,20	6,26	Supported

Mediating Variable

This observation additionally investigates the function of Satisfaction (SAT) and Perceived usefulness (PU) as an intervening variable. This variable is situated along four routes: one connecting SE and CI, another connecting ENJ and CI, PU and CI, and CON and CI. Table 1 indicates that the pathways of H11 and H12 demonstrate both complimentary mediation and partial mediation. A complementary mediation occurs when both the indirect influence (a x b) and the direct impact (c) have the same magnitude and equally positive direction (Zhao et al., 2010). Partial mediation occurs when the antecedent variable exerts both a direct influence on the criterion variable and an indirect influence through one or more intervening factors (Hayes, 2018). Moreover, paths such as H10 and H13 are classified as indirect-only mediation because the model didn't evaluate the direct relationship between the independent and dependent variables (Zhao et al., 2010).

DISCUSSION

The results suggested that self-efficacy significantly and positively influences perceived usefulness and confirmation. These findings implied a direct correlation between an employee's confidence in their abilities and their perceived usefulness of the information system. This also suggested a direct relationship between an employee's perception of their self-efficacy and the level of confirmation regarding the information system. This observation aligned with preceding research, which underscores self-efficacy as a robust determinant impacting the intention to adopt and embrace technology (Al-Adwan et al., 2023; Thongsri et al. 2020; Liao et al., 2018). These findings were also consistent with the conclusions drawn by Shiau et al. (2020), which indicated that technological self-efficacy positively impacts confirmation while using fintech applications. Employees' comfort when using SIOPN can be influenced by their high proficiency in skills resulting from successful education and training provided by OPN. This is further supported by reliable system performance, which fulfils employees' perceived usefulness of the system.

Confirmation was found significantly and positively influences perceived usefulness and satisfaction. This indicated a direct relationship between the level of employee confirmation and the perceived usefulness of the information system. This also suggested that as employee confirmation of the information system increases, so does their level of satisfaction with it. These results bolster previous studies on users of Government apps, as confirmation was found to have a significant and positive impact on perceived usefulness (Mao et al., 2023). Additionally, the present study's results corroborated the findings of Shiau et al. (2020), indicating that confirmation has a no positive effect on satisfaction when using fintech applications. In practical terms, this suggested that employees' expectations regarding the features of the OPN information system overall have been met.

There was a significant and positive relationship of perceived usefulness towards satisfaction and continuance intention. This indicated that as employees perceive the system to

be more useful, their satisfaction with it increases. It can also be concluded that there is a positive correlation between an employee's perceived usefulness of the information system and their intention to continue using it. This result was in line with the findings of Alshammari (2023), who observed a positive effect of perceived usefulness on satisfaction in the context of using M-Government. The findings of this study further corroborated the research conducted by Cheng (2020), which asserted that in the context of utilising a cloud-based hospital information system, perceived usefulness also exerts a substantial positive impact on the intention to continue using the system.

Enjoyment was found significantly and positively influences satisfaction and continuance intention. This suggested that as employees experience greater enjoyment with the information system, their satisfaction and continuance intention levels also increase. These results were consistent with previous studies indicating a strong correlation between satisfaction and enjoyment, as evidenced by research conducted by Lu et al. (2017) and Pereira & Tam (2021). Additionally, Jo (2022) also found a positive association between enjoyment and the continuance intention of using Social Networking Services (SNS). Based on these data, it can be inferred that developing a system that enhances user enjoyment directly leads to an increase in the intention to continue using it. Satisfaction significantly impacts the intention to continue using the information system, indicating a positive correlation between employee satisfaction and their continuance intention to system usage. These findings were in line with the ECM theory, incorporating the core elements of confirmation, perceived usefulness, satisfaction, and continuance intention (Bhattacherjee, 2001). They further strengthened prior research suggesting a substantial influence of satisfaction on the continuance intention, as evidenced by studies conducted by Kamble et al. (2024) and Nguyen & Dao (2024).

The mediation hypothesis tests revealed that satisfaction served as a mediating factor in the relationship between enjoyment, perceived usefulness, and confirmation on continuance intention. Moreover, perceived usefulness successfully mediated the connection between self-efficacy and continuance intention. These findings suggested a positive correlation between employee satisfaction and perceived usefulness, highlighting the strength of the indirect pathway between the antecedent and criterion variables. This conclusion aligned with the prior study Al-Adwan et al. (2023) and Shiau et al. (2020), underscored a strong mediation effect of self-efficacy on continuance intention via perceived usefulness. Furthermore, the findings aligned with studies conducted by Rahimullah et al. (2022) and Pereira & Tam (2021), demonstrating a mediation effect of enjoyment on continuance intention via satisfaction, particularly in public sector. Similarly, previous research in the government sector by Alshammari (2023) and Mao et al. (2023) identified a strong indirect relationship between perceived usefulness and continuance intention, as well as between confirmation and continuance intention, both mediated by satisfaction.

In general, respondents wanted to continue using SIOPN based on aspects of self-efficacy, enjoyment, perceived usefulness, confirmation, and satisfaction felt by its users. However, based on the analysis of two open questions, there are complaints related to the lack of integration of various applications in SIOPN that can only be accommodated by creating a new information system.

CONCLUSION

This study underscored the pivotal role of satisfaction as a mediator between enjoyment, perceived usefulness, and confirmation in shaping an employee's inclination to persist in using an information system within their workplace. Additionally, it highlighted the crucial mediating role of perceived usefulness in the relationship between self-efficacy and continuance intention. These findings resonated with theoretical frameworks and hold significant implications for the existing literature on information system continuance in the public sector. The analysis revealed that self-efficacy and confirmation were strong predictors of perceived usefulness. There existed a strong and positive association between confirmation and satisfaction, perceived usefulness and satisfaction as well as enjoyment and satisfaction. Satisfaction acted as a partial mediation variable between perceived usefulness and continuance intention as well as between enjoyment and continuance intention. Hereafter, the relationship between self-efficacy and continuance intention was influenced by perceived usefulness as the indirect-only mediator. In addition, the relationship between confirmation and continuance intention was influenced by satisfaction as the indirect-only mediator. Ultimately, the continuance intention in information systems was strongly associated with satisfaction, enjoyment, and perceived usefulness. Overall, this study provides support for all thirteen hypotheses. These findings contributed to a deeper understanding of the factors influencing employees' intentions to continue using information systems, especially in integrating the Expectation Confirmation Model with self-efficacy and enjoyment. It also offers valuable insights for practitioners and policymakers in the public sector.

This research is constrained by various limitations. Firstly, it exclusively depends on quantitative research methods, particularly questionnaires, without including in-depth interviews to collect further insights from respondents regarding the investigated issue. In addition, the study participants are exclusively drawn from a single government agency. This ensures that investigations conducted across diverse disciplines, even within the same public sector domain, may yield disparate findings. It recommends integrating the variable social influence in the model to determine the extent to which the beliefs of others influence a person's decision to use a new system (Venkatesh et al., 2003).

REFERENCES

Akdim, K., Casaló, L. V., & Flavián, C. (2022). The role of utilitarian and hedonic aspects in the continuance intention to use social mobile apps. *Journal of Retailing and Consumer Services*, *66*, 102888. https://doi.org/10.1016/j.jretconser.2021.102888

Al-Adwan, A. S., Li, N., Al-Adwan, A., Abbasi, G. A., Albelbisi, N. A., & Habibi, A. (2023). Extending the technology acceptance model (TAM) to predict university students' intentions to use metaverse-based learning platforms. *Education and Information Technologies*, *28*(11), 15381–15413. https://doi.org/10.1007/s10639-023-11816-3

Alruwaie, M., El-Haddadeh, R., & Weerakkody, V. (2020). Citizens' continuous use of eGovernment services: The role of self-efficacy, outcome expectations and satisfaction. *Government Information Quarterly*, *37*(3), 101485. https://doi.org/10.1016/j.giq.2020.101485

Alshammari, T. (2023). Factors affecting continuance intention of M-Government: An empirical study. *International Journal of E-Business Research*, *19*(1), 1–23. https://doi.org/10.4018/IJEBR.326550

Alyoussef, I. Y. (2023). Acceptance of e-learning in higher education: The role of task-technology fit with the information systems success model. *Heliyon*, *9*(3), e13751. https://doi.org/10.1016/j.heliyon.2023.e13751

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122–147. https://doi.org/10.1037/0003-066X.37.2.122

Bandura, A. (1986). *Social Foundations of Thought and Action: A social cognitive Theory* (pp. xiii, 617). Prentice-Hall, Inc.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. W.H. Freeman.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, *25*(3), 351. https://doi.org/10.2307/3250921

Capistrano, E. P., Gomez, M. M. E., & Isleta, A. P. M. (2023). Examining trust, self-efficacy, and technology acceptance in the Philippines' e-commerce sectors. *Information Development*, 026666692311538. https://doi.org/10.1177/02666669231153837

Chahal, J., & Rani, N. (2022). Exploring the acceptance for e-learning among higher education students in India: Combining technology acceptance model with external variables. *Journal of Computing in Higher Education*, *34*(3), 844–867. https://doi.org/10.1007/s12528-022-09327-0

Cheng, Y.-M. (2020). Quality antecedents and performance outcome of cloud-based hospital information system continuance intention. *Journal of Enterprise Information Management*, *33*(3), 654–683. https://doi.org/10.1108/JEIM-04-2019-0107

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, *19*(2), 189. https://doi.org/10.2307/249688

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, *22*(14), 1111–1132. https://doi.org/10.1111/j.1559-1816.1992.tb00945.x

El-Haddadeh, R., Weerakkody, V., Osmani, M., Thakker, D., & Kapoor, K. K. (2019). Examining citizens' perceived value of internet of things technologies in facilitating public sector services engagement. *Government Information Quarterly*, *36*(2), 310–320. https://doi.org/10.1016/j.giq.2018.09.009

Foroughi, B., Iranmanesh, M., Kuppusamy, M., Ganesan, Y., Ghobakhloo, M., & Senali, M. G. (2023). Determinants of continuance intention to use gamification applications for task management: An extension of technology continuance theory. *The Electronic Library*, *41*(2/3), 286–307. https://doi.org/10.1108/EL-05-2022-0108

Franque, F. B., Oliveira, T., Tam, C., & Santini, F. D. O. (2020). A meta-analysis of the quantitative studies in continuance intention to use an information system. *Internet Research*, *31*(1), 123–158. https://doi.org/10.1108/INTR-03-2019-0103

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (Eighth edition). Cengage.

Hayes, A. F. (2018). *Introduction To Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach* (Second edition). The Guilford Press.

Hong, S., Thong, J. Y. L., & Tam, K. Y. (2006). Understanding continued information technology usage behavior: A comparison of three models in the context of mobile internet. *Decision Support Systems*, *42*(3), 1819–1834. https://doi.org/10.1016/j.dss.2006.03.009

Islam, M. T., Talukder, Md. S., Khayer, A., & Islam, A. K. M. N. (2023). Exploring continuance usage intention toward open government data technologies: An integrated approach. *VINE Journal of Information and Knowledge Management Systems*, *53*(4), 785–807. https://doi.org/10.1108/VJIKMS-10-2020-0195

Jangir, K., Sharma, V., Taneja, S., & Rupeika-Apoga, R. (2022). The Moderating effect of perceived risk on users' continuance intention for fintech services. *Journal of Risk and Financial Management*, *16*(1), 21. https://doi.org/10.3390/jrfm16010021

Jo, H. (2022). Antecedents of continuance intention of social networking services (SNS): Utilitarian, hedonic, and social contexts. *Mobile Information Systems*, *2022*, 1–14. https://doi.org/10.1155/2022/7904124

Kamble, A., Upadhyay, N., & Abhang, N. (2024). Navigating the learning landscape: Social cognition and task-technology fit as predictors for MOOCs continuance Intention by sales professionals. *The International Review of Research in Open and Distributed Learning*, *25*(1), 24–44. https://doi.org/10.19173/irrodl.v25i1.7567

Katadata. (2022). *Mayoritas Warga RI Belum Pernah Akses Layanan Publik Online*. Artikel Ini Diakses Pada Tanggal 10 Februari 2024. https://databoks.katadata.co.id/datapublish/2022/07/22/mayoritas-warga-ri-belum-pernah-akses-layanan-publik-online

Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education*, *54*(2), 506–516. https://doi.org/10.1016/j.compedu.2009.09.002

Leon, S. (2018). Service mobile apps: A millennial generation perspective. *Industrial Management & Data Systems*, *118*(9), 1837–1860. https://doi.org/10.1108/IMDS-10-2017-0479

Li, X., Wang, X., & Wei, C. (2022). Antecedents of continuance intention in online learning systems among vocational college students: The moderating effect of gender. *Frontiers in Psychology*, *13*, 1088270. https://doi.org/10.3389/fpsyg.2022.1088270

Li, Y., & Wang, J. (2021). Evaluating the impact of information system quality on continuance intention toward cloud financial information system. *Frontiers in Psychology*, *12*, 713353. https://doi.org/10.3389/fpsyg.2021.713353

Liao, S., Hong, J.-C., Wen, M.-H., Pan, Y.-C., & Wu, Y.-. (2018). Applying technology acceptance model (TAM) to explore users' behavioral intention to adopt a performance assessment system for e-book production. *EURASIA Journal of Mathematics, Science and Technology Education*, *14*(10). https://doi.org/10.29333/ejmste/93575

Lu, J., Liu, C., & Wei, J. (2017). How important are enjoyment and mobility for mobile applications? *Journal of Computer Information Systems*, *57*(1), 1–12. https://doi.org/10.1080/08874417.2016.1181463

Mao, Z., Zou, Q., Bu, T., Dong, Y., & Yan, R. (2023). Understanding the role of service quality of Government APPs in continuance intention: An expectation–confirmation perspective. *SAGE Open*, *13*(4), 21582440231201218. https://doi.org/10.1177/21582440231201218

Media Keuangan. (2023). *PSIAP untuk Layanan Pajak Lebih Mantap*. Artikel ini diakses pada tanggal 10 Februari 2024. https://mediakeuangan.kemenkeu.go.id/article/show/psiap-untuk-layanan-pajak-lebih-mantap

MenPANRB. (2024). *Hasil Evaluasi Sistem Pemerintahan Berbasis Elektronik Pada Instansi Pusat dan Pemerntah Daerah Tahun 2023*.

Monowida, A. (2023). *Menyambut Pembaruan Sistem Administrasi Pajak*. Artikel ini diakses pada tanggal 10 Februari 2024. https://news.detik.com/kolom/d-6821267/menyambut-pembaruan-sistem-administrasi-pajak

Nascimento, B., Oliveira, T., & Tam, C. (2018). Wearable technology: What explains continuance intention in smartwatches? *Journal of Retailing and Consumer Services*, *43*, 157–169. https://doi.org/10.1016/j.jretconser.2018.03.017

Nguyen, G.-D., & Dao, T.-H. T. (2024). Factors influencing continuance intention to use mobile banking: An extended expectation-confirmation model with moderating role of trust. *Humanities and Social Sciences Communications*, *11*(1), 276. https://doi.org/10.1057/s41599-024-02778-z

Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016). An expectation-confirmation model of continuance intention to use mobile instant messaging. *Telematics and Informatics*, *33*(1), 34–47. https://doi.org/10.1016/j.tele.2015.05.006

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, *17*(4), 460. https://doi.org/10.2307/3150499

Organisasi Pendapatan Negara. (2020). *Laporan Tahunan OPN 2019*. Jakarta: Organisasi Pendapatan Negara.

Organisasi Pendapatan Negara. (2021). *Laporan Tahunan OPN 2020*. Jakarta: Organisasi Pendapatan Negara.

Organisasi Pendapatan Negara. (2022). *Laporan Tahunan OPN 2021*. Jakarta: Organisasi Pendapatan Negara.

Organisasi Pendapatan Negara. (2023). *Laporan Tahunan OPN 2022*. Jakarta: Organisasi Pendapatan Negara.

Pereira, R., & Tam, C. (2021). Impact of enjoyment on the usage continuance intention of video-on-demand services. *Information & Management*, *58*(7), 103501. https://doi.org/10.1016/j.im.2021.103501

Rahimullah, N. A., Damayanti, S. B., Izra, A. A., & Handayani, P. W. (2022). Assessing the factors influencing users accessing higher education content on TikTok. *Cogent Education*, *9*(1), 2148498. https://doi.org/10.1080/2331186X.2022.2148498

Rekha, I. S., Shetty, J., & Basri, S. (2023). Students' continuance intention to use MOOCs: Empirical evidence from India. *Education and Information Technologies*, *28*(4), 4265–4286. https://doi.org/10.1007/s10639-022-11308-w

Shiau, W.-L., Yuan, Y., Pu, X., Ray, S., & Chen, C. C. (2020). Understanding fintech continuance: Perspectives from self-efficacy and ECT-IS theories. *Industrial Management & Data Systems*, *120*(9), 1659–1689. https://doi.org/10.1108/IMDS-02-2020-0069

Suzianti, A., & Paramadini, S. A. (2021). Continuance Intention of e-learning: The condition and its connection with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 97. https://doi.org/10.3390/joitmc7010097

Tam, C., Santos, D., & Oliveira, T. (2020). Exploring the influential factors of continuance intention to use mobile Apps: Extending the expectation confirmation model. *Information Systems Frontiers*, *22*(1), 243–257. https://doi.org/10.1007/s10796-018-9864-5

Thong, J. Y. L., Hong, S.-J., & Tam, K. Y. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies*, *64*(9), 799–810. https://doi.org/10.1016/j.ijhcs.2006.05.001

United Nations. (2022). *E-Government Survey 2022*. Department of Economic and Social Affairs.

Van Der Heijden. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, *28*(4), 695. https://doi.org/10.2307/25148660

Venkatesh, Morris, Davis, & Davis. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425. https://doi.org/10.2307/30036540

Yang, H. (2024). Factors impacting college student satisfaction, perceived usefulness, and continuance intention with e-learning in Dezhou, China. *Scholar: Human Sciences*, *16*(1), Article 1. https://doi.org/10.14456/shserj.2024.18

Yuan, S., Liu, Y., Yao, R., & Liu, J. (2016). An investigation of users' continuance intention towards mobile banking in China. *Information Development*, *32*(1), 20–34. https://doi.org/10.1177/0266666914522140

Yuduang, N., Ong, A. K. S., Prasetyo, Y. T., Chuenyindee, T., Kusonwattana, P., Limpasart, W., Sittiwatethanasiri, T., Gumasing, Ma. J. J., German, J. D., & Nadlifatin, R. (2022). Factors influencing the perceived effectiveness of COVID-19 risk assessment mobile application "MorChana" in Thailand: UTAUT2 approach. *International Journal of Environmental Research and Public Health*, *19*(9), 5643. https://doi.org/10.3390/ijerph19095643

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*(2), 197–206. https://doi.org/10.1086/651257