

THE IMPACT OF TECHNOLOGY UTILISATION ON THE EFFECTIVENESS OF INTERNAL CONTROL SYSTEM WORK AT BP BATAM

Rahmi Ramadhani¹, Nadia Fathurrahmi Lawita²

Business Management

Correspondences: rahmi10rmdhn@gmail.com

Submission: June 25, 2025

Reviewed: June 30, 2025

Accepted: July 8, 2025

Accessible articles: [Archives | Jurnal Akuntansi Bisnis Pelita Bangsa \(jppmpelitabangsa.id\)](https://jurnal.akuntansi-bisnis-pelita-bangsa.id)

ABSTRACT

This study analyses the impact of technology utilisation on the effectiveness of the Internal Control System (ICS) at BP Batam. Using a mixed-method approach, data was collected through questionnaires distributed to all 32 staff members of the internal audit unit and interviews with department head and sub-department head. Quantitative results indicate that the use of technology, particularly the B-Audit system, significantly enhances the effectiveness of the ICS by improving data accuracy, decision-making speed, and transparency. Qualitative findings further confirm the critical role of technology in supporting internal control functions, supported by adequate facilities, communication channels, and responsive IT support. Despite challenges such as the adaptation of some employees nearing retirement and the need for better audit standar implementation, the overall contribution of technology to SPI at BP Batam is positive. Recommendation includes enhanced training, strengthened infrastructure, and system integration to maintain and maximise the benefits of technology in internal control.

Keyword: Internal Control System, BP Batam, technology Utilisation, Work Effectiveness, B-Audit.

ABSTRAK

Penelitian ini menganalisis dampak pemanfaatan teknologi terhadap efektivitas sistem pengendalian internal (SPI) di BP Batam. Dengan menggunakan metode campuran, data dikumpulkan melalui kuesioner yang disebarakan kepada seluruh 32 staf Unit Audit Internal dan wawancara dengan kepala bagian dan kepala subbagian. Hasil kuantitatif menunjukkan bahwa pemanfaatan teknologi, khususnya sistem B-Audit, secara signifikan meningkatkan efektivitas SPI dengan meningkatkan akurasi data, kecepatan pengambilan keputusan, dan transparansi. Temuan kualitatif lebih lanjut mengonfirmasi peran penting teknologi dalam mendukung fungsi pengendalian internal, didukung oleh fasilitas yang memadai, saluran komunikasi, dan dukungan IT yang responsif. Meskipun terdapat tantangan seperti adaptasi sebagian karyawan yang mendekati pensiun dan perlunya implementasi standar audit yang lebih baik, kontribusi keseluruhan teknologi terhadap SPI di BP Batam adalah positif. Rekomendasi termasuk peningkatan pelatihan, penguatan infrastruktur, dan integrasi sistem untuk mempertahankan dan memaksimalkan manfaat teknologi dalam pengendalian internal.

Kata kunci: Sistem Pengendalian Internal, BP Batam, Pemanfaatan Teknologi, Efektivitas Kerja, B-Audit.

INTRODUCTION

In the era of globalisation marked by the rapid development of information technology, the use of technology has become a crucial aspect in improving the effectiveness of work in various sectors, including the Internal Control System (ICS) in the company. Along with technological advances, many companies have begun to adopt information systems to strengthen their internal controls. Research by Sandu, Wadesango, and Sitsha (2023) shows that the use of information technology can have a significant impact on the effectiveness of internal control, as seen in Normal Ranch Limited. In addition, Gungor and Adiloglu (2019) emphasised that digitalisation has brought about major changes in the audit profession, improving the efficiency and effectiveness of the audit process. This shows that the use of

technology in the Internal Control System (ICS) can make a positive contribution to company performance (Tikaromah et al., 2025).

Companies in various sectors must continue to adapt by utilising technology to improve the efficiency and effectiveness of their business. One sector that has been significantly impacted by technological development is the audit. With the advent of cloud-based global audit platforms, the audit process can now be conducted in real-time, making it more efficient, transparent, and accurate. Before 2000, audits were conducted manually using paper, which was time-consuming and labour-intensive. However, in the 2000s, the use of Excel became common in auditing, and by the mid-2000s, technology began to evolve rapidly with the application of data analytics and risk-based audit approaches, which provide higher efficiency and effectiveness in the audit process (Adella, 2024).

Job effectiveness is the main focus for companies in this modern era. An effective company is one that can achieve its goals without sacrificing existing resources. Mahadeen et al. (2016) emphasise the importance of optimising processes and outcomes in company operations. In this context, the Batam Development Authority (BP Batam) has an important role in the application of modern technology in the audit and management process, which is expected to increase transparency and accountability in the management of resources in free zones such as Batam.

The Batam Free Trade Zone and Free Port Enterprise (BP Batam) is a government agency established under government regulation of the Republic of Indonesia Number 46 of 2007. The duties and authorities of BP Batam include management, development, and construction of the area in accordance with the functions of the area. In performing its duties, BP Batam implements a strong Internal Control System (ICS) to ensure that all operational processes and activities are transparent, accountable, and in accordance with applicable regulations, thereby supporting the achievement of sustainable development goals in the region.

The implementations of an Internal Control System utilize technology must be in accordance with Government Regulation of The Republic of Indonesia Number 60 of 2008, which states that the Internal Control System is an integral process of management activities and all employees to ensure the achievement of company objectives effectively and efficiently. Although the Internal Control System has been established, the Supreme Audit Agency of the Republic of Indonesia found a number of weaknesses in the internal control system, with 1,004 problems related to the financial statements of ministries/institution at the beginning of 2022. This shows that despite efforts to implement the Internal Control System, there are still challenges that need to be overcome.

The use of B-Audit technology by the Internal Audit Unit at BP Batam is a strategic move designed to improve the effectiveness and efficiency of the Internal Control System (ICS) performance. Although B-Audit is expected to improve effectiveness from the outset, it is important to understand the factors that influence the acceptance and utilisation of this technology. Therefore, this study aims to assess the impact of technology utilisation on the effectiveness of the Internal Control System (ICS) at the institution. This research is expected to provide benefits for BP Batam and become a reference for other companies in improving the effectiveness of the Internal Control System (ICS) through technology.

As an analytical framework, this research will refer to the Unified Theory of Acceptance and Use of Technology (UTAUT) is a model developed by (Venkatesh et al. 2003) explaining the acceptance and use of information system innovations and information technology (Dwivedi et al., 2019). UTAUT has proven successful in technology acceptance theory, a success rate of 70% (Downe & Taiwo, 2013).

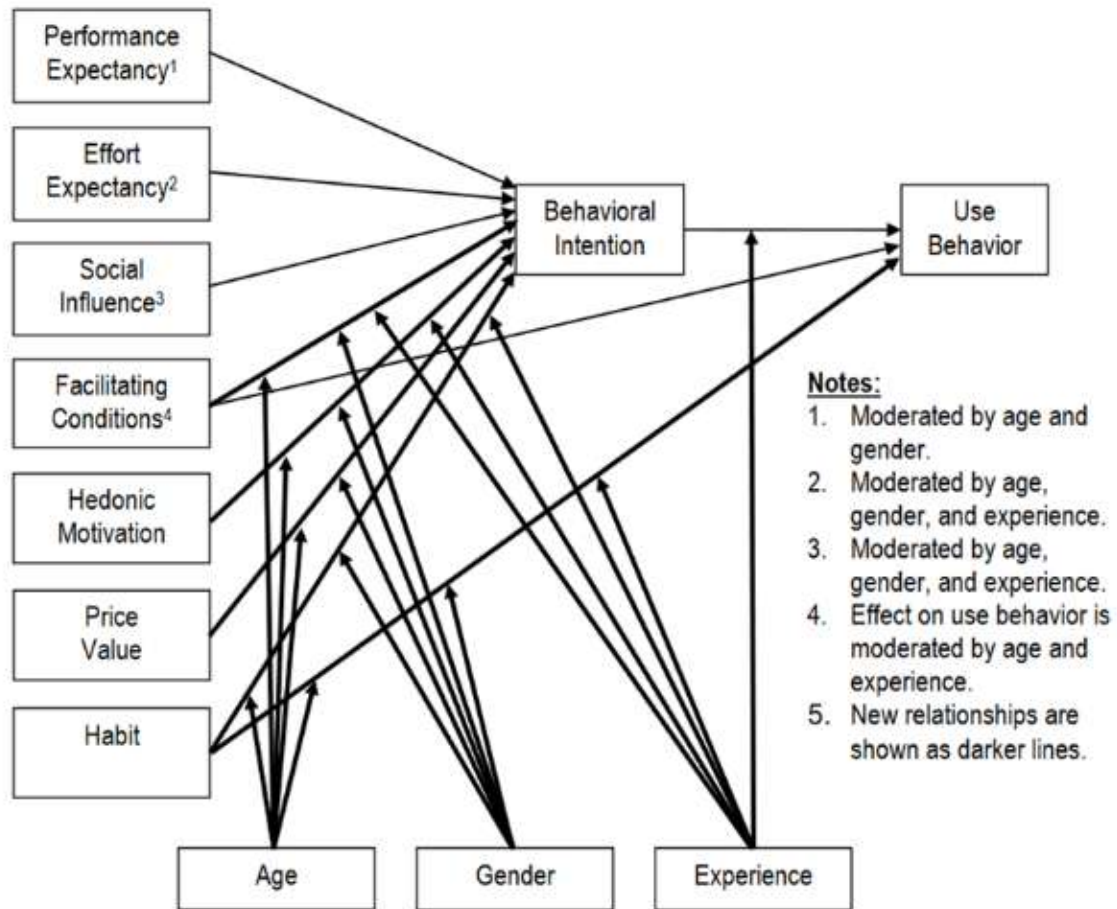


Figure 1. UTAUT Scheme

Source: (Venkatesh et al., 2012)

In Figure 1 UTAUT explains the new factors in technology, namely:

- a. Performance Expectancy shows the level of confidence that use if technology will help work and provide benefits;
- b. Effort Expectancy shows the level of ease of using technology that encourages technology utilization;
- c. Social Influence shows the level of perception of someone who believe they should use new technology at work;
- d. Facilitating Conditions shows a person's perception of resources in technology utilization.

Understanding the acceptance of this technology is very relevant, especially in the context of strengthening the Internal Control System (ICS). The Internal Control System (ICS) itself is a process established by management and implemented by company members with the aim of providing adequate assurance regarding the reliability of financial statements, compliance with applicable regulations, and the efficiency and effectiveness of company activities (Irsutami et al., 2018). In this regard, The Committee of Sponsoring Organizations of the Treadway Commission (COSO), which was established in 1985 to prevent financial reporting fraud, published the Internal Controls Integrated Framework in 1992 as a reference for boards of directors, executives, and regulators in assessing the effectiveness of internal



control. In 2013, the framework was revised to provide definitions, standards, and criteria that assist organisations in evaluating and improving their control systems.

Figure 2. COSO Framework

Source: (Damayanti, 2017)

An article written by Romanti (2023) and published by the Inspectorate General of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia, explains that the internal control framework implemented by COSO includes five main components, which can be seen in Figure 2, namely:

- a. Management Environment;
- b. Risk Management;
- c. Management Activities;
- d. Information and Communication;
- e. Monitoring

The hypothesis is an initial explanation of the relationship between complex phenomena. The hypothesis is an initial answer to the problem under study, but it is temporary and requires testing for its truth (Wibowo 2021). Therefore, the hypothesis of this study is:

H1: Is there an influence of technology on internal control in BP Batam?

H2: How does technology contribute to the internal control system in BP Batam?

RESEARCH METHODS

Research on the Benefits of Technology on the Effectiveness of Internal Control System Work at the Batam Development Authority (BP Batam) uses a mixed method which combines two forms of approaches, namely quantitative and qualitative. The reason for choosing a mixed method is to ensure a thorough understanding of the research topic by understanding various perspectives and types of data. According to Creswell and Creswell (2018) mixed methods is a research approach that combines elements of quantitative and qualitative research. By collecting and analysing data from both types of research, mixed methods aim to provide a deeper understanding of a phenomenon. This research obtains data from questionnaires that will be given to staff of the BP Batam Internal Audit Unit and Interviews with experts to gain an in-depth understanding of the Effect of Technology Utilisation on the Effectiveness of Internal Control System Work at BP Batam.

- a. Operational Variables and Their Measurement

This study has the independent variable, Technology Benefits and the dependent

variable, Effectiveness of Internal Control System Work. The following are the operational details of this research variable.

Table 1. Operational Variable

Variable	Definition	Indicator	Source
Technology Utilisation	Technology Utilisation is always related to the acceptance of technology users. How well users accept and understand the technology is an important factor to assess the success rate of technology implementaion	<ul style="list-style-type: none"> • Performance Expectancy • Effort Expectancy • Social Influence • Facilitating Condition 	(Venkatesh et al., 2003b)
Effectiveness of Intenal Control System Work	Effectiveness is an indicator of the extent to which an organisation achieves its goals. If the organisation is successful in achieving its objectiveness then it is operating effectively.	<ul style="list-style-type: none"> •Management Enviroment •Risk Assessment •Management Activities •Information and Communication •Monitoring 	(Mardiasmo, 2018)

Source: (Data Processing, 2025)

b. Type and Source of Data

The data used in the study of Technology Benefits on the Effectiveness of Internal Control System Work is primary data. The data is obtained directly from the research location, namely the BP Batam Internal Audit Unit. The data collection process is carried out through questionnaires and interviews which aim to obtain accurate and relevant information. The type of data used is nominal data. The use of nominal data can provide a clear picture of various aspects related to the Effect of Technology Utilisation on the Effectiveness of Internal Control System Work at BP Batam

c. Research Instruments

The research instruments used to collect data consisted of questionnaires and interviews. The questionnaire was specifically designed to collect quantitative data using a likert scale that allows respondents to express their level of agreement with the statements posed. The likert scale used in this questionnaire consist of five points, namely: Poin 1 "Strongly Disagree (SD)", Point 2 "Disagree (D)", Point 3 "Neutral (N)", Point 4 "Agree (A)", Point 5 "Strongly Agree (SA)". In addition, interviews were conducted in a structured manner to obtain more in-depth information about participants experiences, opinions and attitude regarding the use of technology in the context of the Internal Control System.

d. Location and Object of Research

The location of the research on the benefits of technology on the effectiveness of the internal control system work at the Batam Development Authority (BP Batam) is located at Jl. Jenderal Ibnu Sutowo No. 1 Batam Centre, Batam, Riau Islands, Indonesia. The object of this research is the benefits of technology in BP Batam as a government agency responsible for the management and development of the Batam area, with a focus on analysing the impact of technology implementation on the effectiveness of the internal control system work implemented by BP Batam to ensure transparency and accountability in its operations.

- e. **Technique for Determining the Number of Samples**
The sample is a small part of the population that is the focus of research and sampling must reflect the number and nature of the population. This process also needs to pay attention to the quality of the population (Saputra et al., 2022). This study uses the census method in which all BP Batam internal control system staff are involved as respondents, given the relatively small population of 32 staff. By using the census method, it is expected that the data obtained can provide a comprehensive and representative picture of the impact of technology implementation on the effectiveness of the internal control system at BP Batam.
- f. **Sample Withdrawal Technique**
The sampling techniques in the study of the Effect of Technology Utilisation in the Effectiveness of Internal Control System Work at BP Batam was not used because the entire population of staff involved in the internal control system was use as respondents.
- g. **Research Informants / Subjects**
The informants / subject of this research are BP Batam Internal Control System staff who are directly involved in implementation and management. These staff were selected because of their experience and in-depth knowledge of the technology used in their daily work, so as to provide insight into the experiences and challenges faced in using technology in working at the BP Internal Control System.
- h. **Data Collection Technique**
In this study, the data collection techniques used consist of two methods, namely questionnaires and interviews. Questionnaires will be distributed to all staff of BP Batam Internal Audit Unit, with statements covering all variables relevant to this study. To measure the level of respondent's agreement with the proposed statements, a five-point liker scale is used: Poin 1 "Strongly Disagree (SD)", Point 2 "Disagree (D)", Point 3 "Neutral (N)", Point 4 "Agree (A)", Point 5 "Strongly Agree (SA)". In addition, interviews were conducted directly and structured with experts who have in-depth knowledge of the internal control system and technology implementation, so that researchers can explore more in-depth information and internal control system.
- i. **Data Analysis Technique**
Quantitative data in this research is obtained through questionnaires distributed to internal control system staff at BP Batam to obtain information about the effect of technology utilisation on the effectiveness of internal control system work, the data was processed using SPSS with the following test: Validity Test, Reliability Test, Normality Test, The Linearity Test.
Qualitative data in this research is obtained through interviews conducted to the head of BP Batam internal control system to obtain more in-dept information about the effect of technology utilisation on the effectiveness of internal control system work. The data will be processed using Nvivo software with several steps, namely: Data Import, Data Coding, Visualisation of The Project, and Preparation of The Output Report.

RESULTS AND DISCUSSION

Result

Research on the Effect of Technology Utilisation on the Effectiveness of Internal Control System (ICS) Work at the Batam Development Authority (BP Batam) uses mixed method in collecting and analysing research data. The research started by distributing questionnaires to the staff of Internal Audit Unit of BP Batam and interviewing the Head of Administration, Head of Planning and Evaluation Subdivision, and Head of General

Subdivision. The questionnaire data obtained as many 32 respondents age 21-64 years and 3 research sources for interviews. The first data analysis is quantitative method by conducting descriptive test, validity test, reliability test, and linear test.

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	12	37,5	37,5	37,5
	Male	20	62,5	62,5	100,0
Total		32	100,0	100,0	

Figure 3. Descriptive Test

Source: (Data Processing, 2025)

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	6	18,8	18,8	18,8
	31-40	10	31,3	31,3	50,0
	41-50	9	28,1	28,1	78,1
	51-60	5	15,6	15,6	93,8
	61-70	2	6,3	6,3	100,0
Total		32	100,0	100,0	

Figure 4. Descriptive Test

Source: (Data Processing, 2025)

Based on the descriptive test in figures 3 and 4, the questionnaire was mostly answered by male respondents (62,5%) and respondents aged 31-40 years (31,03%), while female respondents (37,5%) and those aged 61-70% years (6,01%) were the least represented. The descriptive data indicate a gender and age imbalance in respondent participation, with the majority being male and in the 31-40 age group. This could influence the interpretation of the B-Audit technology.

Correlations

		X1	X2	X3	X4	Y1	Y2	Y3	Y4	Y5
X1	Pearson Correlation	1	,304	,693**	,372	,611**	,469**	,494**	,284	,400
	Sig. (2-tailed)		,090	,000	,036	,000	,007	,004	,115	,000
	N	32	32	32	32	32	32	32	32	32
X2	Pearson Correlation	,304	1	,089	,551**	-,019	-,137	-,146	-,074	-,108
	Sig. (2-tailed)	,090		,630	,001	,917	,454	,426	,688	,000
	N	32	32	32	32	32	32	32	32	32
X3	Pearson Correlation	,693**	,089	1	,289	,762**	,749**	,745**	,440	,539**
	Sig. (2-tailed)	,000	,630		,108	,000	,000	,000	,012	,001
	N	32	32	32	32	32	32	32	32	32
X4	Pearson Correlation	,372	,551**	,289	1	,248	,111	,096	,151	,075
	Sig. (2-tailed)	,036	,001	,108		,171	,547	,602	,410	,000
	N	32	32	32	32	32	32	32	32	32
Y1	Pearson Correlation	,611**	-,019	,762**	,248	1	,849**	,899**	,548**	,681**
	Sig. (2-tailed)	,000	,917	,000	,171		,000	,000	,001	,000
	N	32	32	32	32	32	32	32	32	32
Y2	Pearson Correlation	,469**	-,137	,749**	,111	,849**	1	,975**	,468**	,678**
	Sig. (2-tailed)	,007	,454	,000	,547	,000		,000	,007	,000
	N	32	32	32	32	32	32	32	32	32
Y3	Pearson Correlation	,494**	-,146	,745**	,096	,899**	,975**	1	,525**	,730**
	Sig. (2-tailed)	,004	,426	,000	,602	,000	,000		,002	,000
	N	32	32	32	32	32	32	32	32	32
Y4	Pearson Correlation	,284	-,074	,440	,151	,548**	,468**	,525**	1	,647**
	Sig. (2-tailed)	,115	,688	,012	,410	,001	,007	,002		,000
	N	32	32	32	32	32	32	32	32	32
Y5	Pearson Correlation	,400	-,108	,539**	,075	,681**	,678**	,730**	,647**	1
	Sig. (2-tailed)	,023	,557	,001	,683	,000	,000	,000	,000	
	N	32	32	32	32	32	32	32	32	32

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 5. Validity Test

Source: (Data Processing, 2025)

Table 2. Reliability Test

Variables	Cronbach'Alpha	Critical value	Description
X1	0,665	0,70	Reliabel
X2	0,956	0,70	Reliabel
X3	0,756	0,70	Reliabel
X4	0,684	0,70	Reliabel
Y1	0,887	0,70	Reliabel
Y2	0,880	0,70	Reliabel
Y3	0,797	0,70	Reliabel
Y4	0,885	0,70	Reliabel
Y5	0,617	0,70	Reliabel

Source: (Data Processing, 2025)

Based on figure 5, the variables Performance Expectancy (X1), Effort Expectancy (X2), Social Influence (X3), Facilitating Conditions (X4), Management Environment (Y1), Risk Management (Y2), Management Activities (Y3), Information and Communication (Y4), and Supervision Variables (Y5) show significant value (2-tailed) below 0,05, indicating a positive Pearson Correlation and that all measurement instruments are valid. Addition, variables X1, X2, X3, Y1, Y2, Y3, Y4, Y5 have Cronbach's Alpha value above 0,70, making them reliable.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53,398	28,488		1,874	,071
	X	1,045	,417	,416	2,504	,018

a. Dependent Variable: Y

Figure 6. Linear Test

Source: (Data Processing, 2025)

One of the interesting features of Nvivo is the Word Frequency Query, which allows user to display word frequency visually, thereby helping in identify word that appear frequently and have informative meanings. In figure 8, the analysis result show that the word "Technology" appears with a frequency of 47,03% followed by the words "System" and "Control". This indicates that technology, including B-Audit technology, plays a very important role in the internal control system, where effective control is key to achieving organisational objective. Therefore, the use of compatible and optimal technology, as well as the support of technology security aspects, are key factors in ensuring that technology can effectively support internal control.

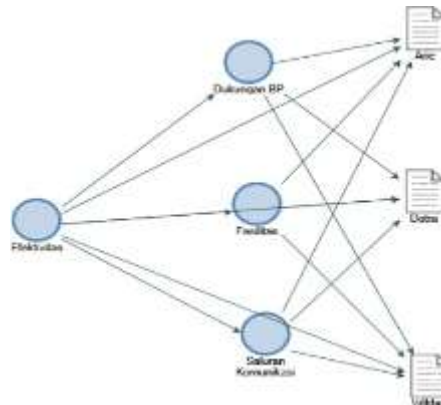


Figure 10. Project Map

Source: (Data Processing, 2025)

Furthermore, the interview data is shown through a project map which can be seen in figure 9. This project map is arranged based on the themes from the coding results and servers to explore and present the relationship between data. From the project map that has been made three main indicators are obtained to achieve effectiveness, namely support from BP Batam, facilities provide, and adequate communication channels. These results are in line with the findings of (Wulandari & Prasetya, 2020) which state that use of information technology is very important to support the effectiveness and efficiency of company activities. The more effective the application of information technology by auditors, the higher the performance that can be achieved. Therefore, BP Batam needs to facilitate technology and other communication channels to optimally support the work of the internal audit unit.

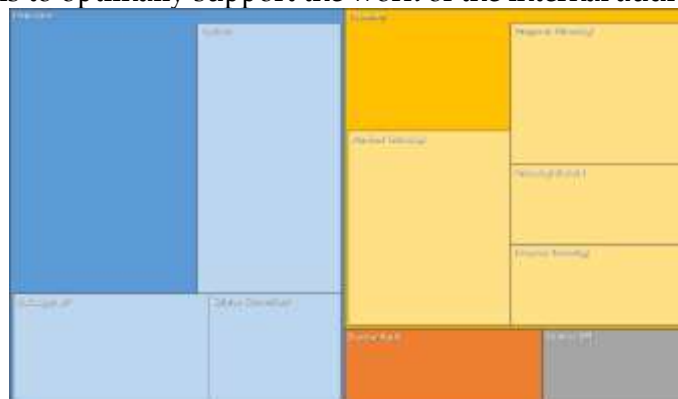


Figure 11. Hierarchical Diagram

Source: (Data Processing, 2025)

The project map that has been created can be presented in the form of a hierarchical diagram, as seen in figure 10. In the figure, it can be seen that effectiveness and technology are the main indicators in achieving work effectiveness. Effectiveness is strongly influenced

by facilities and technology, where technology has an important role that includes aspects of influence, benefits, and technology adaption. In addition, support from BP Batam and communication channels also contribute significantly to the effectiveness. In additions, audit standards and internal audit unit structure also play an important role in the context of technology, which shows how important it is to have clear framework in the application of technology to support the effectiveness of work.

Table 2. Triangulation Test

Theme	Respondent 1	Respondent 2	Respondent 3	Findings
Documentation System	BP Batam has a newly launched B-audit system in SPI, developed in collaboration with PDSI, designed to store reports and findings recommendations, enabling effective monitoring. Although the implementation of B-audit is not yet optimal, all findings and recommendations are recorded, allowing us to continue to monitor and improve existing controls.	B-Audit was recently launched specifically at SPI in collaboration with PDSI. This routine monitoring system is used to store reports and all findings and recommendations, so that we can monitor them through the B-Audit application system.	BP Batam has a B-audit system that stores findings, recommendations and reports, enabling us to conduct regular monitoring through the B-audit application system.	A new B-audit system was launched at SPI in collaboration with PDSI, designed to store reports and findings recommendations, enabling effective monitoring. Although the implementation of B-audit is currently not optimal, all findings and recommendations are recorded. A routine monitoring system is implemented every semester to support this process.
Ease of Use of Technology	I feel that it is significantly easier to use technology at BP Batam, with easily accessible applications and hardware facilities that support the delegation of authority and assignable tasks that can be monitored. If there are any problems, we can contact the IT team through the portal for a quick response. All of this allows us to carry out our activities more efficiently and effectively.	I find it easy to use the technology available at BP Batam. To carry out activities, hardware facilities are also provided. So, we can take advantage of this convenience in carrying out my work.	I feel that using technology is significantly easier, because all available applications can be utilised effectively. Hardware facilities are also provided, enabling us to carry out our daily work more efficiently.	Significant ease of use of technology at BP Batam, where all applications are easily accessible and utilised in daily work. Good hardware facilities support optimal use of technology, enabling monitoring of delegation of authority and assignment of tasks.
Understanding and Adaptation of Technology	I understand the use of technology at BP Batam, where applications have been well socialised for optimal utilisation. However, some employees, especially those approaching	As far as I understand, I am very familiar with the technology. Moreover, the applications available at BP are also easy to use, especially if they are well socialised and can be utilised.	As far as my understanding of technology goes, I understand it very well. There is no application that I cannot use. The applications have also been well socialised and can	The use of technology at BP Batam is very easy to understand, where all applications have been effectively socialised, enabling optimal utilisation. However, employees approaching retirement age have

Theme	Respondent 1	Respondent 2	Respondent 3	Findings
	retirement, have not fully utilised the technology due to a lack of adaptation.		already be used. Although there may still be obstacles, such as some employees who are approaching retirement still not utilising the available technology.	not fully utilised technology due to a lack of awareness and adaptation to change.
Technology facilities and Support	BP Batam provides facilities such as hardware, software, and data processing equipment. We can submit requests to the General Bureau for the procurement of equipment, with 12 units in 2023 and 4 units in 2024. The quick response from the relevant parties ensures that our needs are met, thereby facilitating our work and improving the efficiency of data management at SPI.	BP Batam menyediakan, memfasilitasi, baik itu dalam bentuk hardware, software, kemudian device untuk pengelolaan data untuk memperlancar pekerjaan. Jadi kita akan minta kepada BP Batam kalau di SPI kekurangan atau membutuhkan beberapa laptop atau PC.	BP Batam provides and facilitates hardware, software, and data processing tools. If SPI needs them, it requests them from the General division. For example, in 2023, we requested approximately 12 units. In 2024, we requested 4 units of assistance, if I am not mistaken, and the response was quick.	BP Batam provides various facilities, including hardware, software, and data processing equipment. We can submit requests to the General Division for the procurement of equipment, such as 12 units in 2023 and 4 units for 2024, with a quick response from the relevant parties. This support facilitates work and improves efficiency in data management at SPI.
Technology Challenges and Opinions	BP Batam's facilities and support greatly facilitate work and provide opportunities to learn about information technology. Although there are challenges in improving individual capabilities, nearly 90% of work processes depend on technology, especially in government administration.	In general, because everything is made easy and provided, we can learn more. So, in my opinion, there are no challenges because everything has been socialised.	Technology utilisation at BP Batam, around 90 per cent of our work relies on information technology. The government management system and coordination between ministries and agencies, including BP Batam, are entirely based on information technology. Therefore, regular maintenance is necessary to minimise disruptions.	The facilities and support at BP Batam facilitate work and provide opportunities to learn about information technology. Although there are challenges in improving individual skills, around 90% of work processes depend on technology. The use of technology in work is a necessity in today's era.

Source: (Data Processing, 2025)

After testing the qualitative data using Nvivo 12, the qualitative data was then tested using triangulation. Triangulation is a method used to assess the accuracy of data or information by considering various perspectives, aiming to strengthen the theoretical, methodological, and interpretative aspects of qualitative research (Alfansyur & Mariyani, 2020). The triangulation test results indicate that BP Batam needs to strengthen the implementation of audit guidelines and ethical standards, as well as integrate assignment procedures with the B-Audit system to support control measures that are still not optimal. Routine risk management evaluation is coordinated with the BPK or BPKP, but their effectiveness needs to be improved. Controls are implemented through assurance and consulting functions with routine monitoring of follow-up action on findings, supported by effectiveness communication channels and technology, including the B-Audit system and responsive IT Helpdesk, which contribute to enhancing efficiency and effectiveness in BP Batam.

Discussion

The first hypothesis is that there is an influence between technology and internal control at BP Batam. This explains that technology has a positive influence on internal control at BP Batam. The results of the linear test show an R Square value of 0.533, which indicates that technology has an influence on internal control at BP Batam, and the T test shows a significant value of 0.001, so the results show that technology has a positive influence on internal control at BP Batam. This is supported by research (Sanusi Fasilat and Hassan 2015) which states that the adoption of technology together with internal control systems does indeed increase the effectiveness of internal control activities. (Muhammad Fauzi Ilmi et al. 2024) also emphasise that technological development has a significant impact on corporate sustainability. Both studies align with the UTAUT theory, which explains the factors influencing the acceptance and use of technology. According to the UTAUT model, performance expectations, effort expectations, social influence, and supporting conditions are critical determinants in technology acceptance. In the context of BP Batam, the positive impact of technology on internal control can be attributed to the perceived performance benefits and ease of use of the B-Audit system, which enhances the overall effectiveness of internal control mechanisms.

The second hypothesis tests the contribution of technology to the internal control system at BP Batam, which was investigated through qualitative research using triangulation methods. The results indicate that technology, particularly the B-Audit system, significantly contributes to internal control, although there are still areas that need to be strengthened, such as the implementation of audit guidelines and ethical standards. Routine risk management evaluations and assurance and consultation functions, supported by effective communication channels, enhance the efficiency and effectiveness of internal control, thereby supporting the achievement of organisational objectives. The triangulation test was reinforced by the results of qualitative data analysis using Nvivo, which showed that the term 'Technology' appeared 47.03 times, indicating that technology plays a crucial role in the internal control system at BP Batam. This is reinforced by research (Nadiyah, Maharani, and Rahmatika 2024) stating that the importance of technology adoption in audit activities is confirmed by an analysis of 50 journals, showing that technology contributes positively to improving the quality, efficiency, effectiveness, and reliability of the audit process as a whole.

Overall, the results of the two hypotheses highlight the important role of technology in improving the internal control system at BP Batam. Alignment with the UTAUT theory highlights that the perceived benefits and ease of use of technological tools, such as the B-Audit system, are crucial for effective acceptance and implementation. As the organisation evolves in a technology-driven environment, it is important to address the identified gaps in audit guidelines and ethical standards to fully leverage the advantages of technology in internal control. This holistic approach will not only enhance the internal control framework but also contribute to the sustainability and success of BP Batam in achieving its organisational goals.

CONCLUSION

The use of technology in the Internal Control System (ICS) at the BP Batam has significantly improved the effectiveness of the ICS work. The application of B-Audit as an internal audit support tool increases transparency, accountability, and efficiency, as well as improves oversight and risk management. Despite challenges such as the need for continuous

training, the technology still contributes greatly in supporting the achievement of organisational goals and setting an example for other institutions.

BP Batam is advised to increase training and socialisation on the use of the B-Audit application, as well as strengthen technology infrastructure and data security. Integration of the internal audit system with other information systems is also important for efficiency and quick decision making. Periodic evaluation of the use of technology and management support in terms of resources and policies are necessary to minimize risk and optimise the effectiveness of the ICS.

REFERENCES

- Adella. (2024, June 11). *Mengoptimalkan Kualitas Audit dengan Teknologi Digital - FEB UGM. UNIVERSITAS GADJAH MADA FAKULTAS EKONOMIKA DAN BISNIS.* <https://feb.ugm.ac.id/id/berita/4616-mengoptimalkan-kualitas-audit-dengan-teknologi-digital>
- Alfansyur, A., & Mariyani. (2020). *SENI MENGELOLA DATA: PENERAPAN TRIANGULASI TEKNIK INFO ARTIKEL ABSTRAK. HITORIS: Jurnal Kajian, Penelitian Dan Pengembangan Pendidikan Sejarah, 5(2), 146-150.* <https://doi.org/10.31764/historis.vXiY.3432>
- Damayanti, K. (2017, May 4). *KERANGKA PENGENDALIAN COSO. Kerangka konseptual pengendalian... | by Khristina Damayanti | Medium. Medium.* <https://medium.com/@khristdamay/kerangka-pengendalian-coso-f4ecca22a10f>
- Downe, A. G., & Taiwo, A. A. (2013). The theory of user acceptance and use of technology (UTAUT): A meta-analytic review of empirical findings. Article in *Journal of Theoretical and Applied Information Technology, 10(1).* www.jatit.org
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers, 21(3), 719-734.* <https://doi.org/10.1007/s10796-017-9774-y>
- Gungor, N., & Adiloglu, B. (2019). The impact of digitalization on the audit profession: a review of Turkish independent audit firms. *Pressacademia, 8(4), 209-214.* <https://doi.org/10.17261/pressacademia.2019.1164>
- Irsutami, Sinarti, & Olifia, J. (2018). Perancangan Sistem Pengendalian Internal Berbasis COSO pada Program Studi di. In *Journal of Applied Accounting and Taxation Article History (Vol. 3, Issue 2).*
- Mahadeen, B., Al-Dmour, R. H., Obeidat, B. Y., & Tarhini, A. (2016). Examining the Effect of the Organization's Internal Control System on Organizational Effectiveness: A Jordanian Empirical Study. *International Journal of Business Administration, 7(6).* <https://doi.org/10.5430/ijba.v7n6p22>
- Mardiasmo. (2018). *AKUNTANSI SEKTOR PUBLIK (Mardiasmo, Ed.). ANDI (Anggota IKAPI).* <https://books.google.co.id/books?id=pBVCEAAAQBAJ&printsec=copyright#v=onepage&q&f=false>
- Romanti. (2023, March 29). *Perubahan Kerangka Kerja Pengendalian Internal COSO dari Komponen, Prinsip, dan Titik Fokusnya - Inspektorat Jenderal Kemendikbudristek. INSPEKTORAT JENDERAL KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI REPUBLIK INDONESIA.* <https://itjen.kemdikbud.go.id/web/perubahan-kerangka-kerja-pengendalian-internal-coso-dari-komponen-prinsip-dan-titik-fokusnya/>

- Sandu, Y., Wadesango, N., & Sitsha, L. (2023). The Impact of Information Technology Systems on Internal Control Effectiveness: A Case Study of Norman Ranch Limited. *Journal of Accounting, Finance and Auditing Studies*, 9(4), 398–409. <https://doi.org/10.56578/jafas090402>
- Saputra, D. N., Listyaningrum, N., Apriani, Rokhayati, T., Asnah, & Leuhoe, Y. (2022, March). *BUKU AJAR METODOLOGI PENELITIAN - Dani Nur Saputra, S.Pd., M.Sn., Novita Listyaningrum, S.H., M.H., Yermias J. I. Leuhoe, S. Kom., M.T., Apriani, S.Si., M.Si, Dr. Asnah, SP, MP, Dr. Titi Rokhayati, M.Pd. - Google Buku. Penerbit CV. Feniks Muda Sejahtera.* https://books.google.co.id/books?id=sWJIEAAAQBAJ&printsec=frontcover&hl=id&source=gbs_book_other_versions_r&pli=1#v=onepage&q&f=false
- Tikaromah, O., Yahya, A., Hidayat, T., & Bangsa, U. P. (2025). Technology Acceptance Model dalam Mendorong Intention to Use pada Sistem Informasi Akuntansi. *AKUBIS: Jurnal Akuntansi Bisnis Pelita Bangsa*, 9(2), 246–256. <https://doi.org/https://doi.org/10.37366/akubis.v9i02.2278>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003a). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003b). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Walton, S. M., Thong, J. Y. L., & Xu, X. (2012). CONSUMER ACCEPTANCE AND USE OF INFORMATION TECHNOLOGY: EXTENDING THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY. In *MIS Quarterly* (Vol. 36, Issue 1). <http://ssrn.com/abstract=2002388>
- Wulandari, R., & Prasetya, R. (2020). *PENGARUH PENERAPAN TEKNOLOGI INFORMASI DAN PROFESIONALISME TERHADAP KINERJA AUDITOR*. 1(2).