Website:
ejournal.umm.ac.id/index.php/jaa

Affiliation:
[1,2]University of Muhammadiyah Yogyakarta, Faculty of Economics and Business, Yogyakarta, Indonesia

***Correspondence*:**
tazramdn@gmail.com

DOI: 10.22219/jaa.v7i4.36835

Citation:
Ramadina, T., Pratolo, S. (2024). Readiness of private universities to adopt blockchain in accounting information systems. Jurnal Akademi Akuntansi, 7(4), 569-579.

Article Process
Submitted:
October 9, 2024

Reviewed:
October 29, 2024

Revised:
November 26, 2024

Accepted:
November 28, 2024

Published:
November 30, 2024

Office Address:
Accounting Department
University of Muhammadiyah Malang
Joint Lecture Building 3rd Floor. Tlogomas Street 246, Malang, East Java, Indonesia

P-ISSN: 2715-1964
E-ISSN: 2654-8321

Article Type: Research Paper

Readiness of private universities to adopt blockchain in accounting information systems

Tazkia Ramadina[1*], Suryo Pratolo[2]

ABSTRACT

Purpose: This study aims to collect empirical data on the impact of three critical variables in blockchain adoption – performance expectancy, effort expectancy, and social influence – on the Intention to use blockchain in private higher education institutions in Indonesia. Using the UTAUT theoretical framework, this study aims to understand how these three factors influence the decision to adopt blockchain technology in accounting information systems.

Methodology/approach: This study investigates how private universities in Indonesia perceive the possibility of implementing blockchain technology in the accounting system. By applying the UTAUT model, the study examined three aspects that may influence the willingness to adopt blockchain technology: performance expectancy, effort expectancy, and social influence. Data was collected through distributing questionnaires to 136 leaders of finance departments in various private universities.

Findings: The results show that performance and efficacy expectancy significantly influence the Intention to use blockchain technology in private universities. In contrast, social influence does not show a significant influence.

Practical and Theoretical contribution/Originality: This research makes a practical contribution by highlighting the importance of perceived usefulness and ease of use in driving blockchain adoption in the higher education sector. From a theoretical perspective, this study extends the applicability of the UTAUT model in the context of private universities in Indonesia.

Research Limitation: The Object of this research is only private higher education institutions in Indonesia.

KEYWORDS: Blockchain; Financial Accounting; Higher Education; Technology Adoption; UTAUT.

© 2024 Tazkia Ramadina, Suryo Pratolo
Jurnal Akademi Akuntansi is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

INTRODUCTION

The rapid development of technology along with the Industrial Revolution 4.0 has encouraged the Ministry of Industry to adopt the latest technology to increase the competitiveness of the national industry (Argani & Taraka, 2020). Fundamental changes in the industrial sector, explicitly and implicitly, have significantly impacted the development of a nation's education sector and the economy, as shown in research (Argani & Taraka, 2020; Yatim et al., 2018). Various technological advances such as the Internet of Things (IoT), cloud computing, Artificial Intelligence (AI), and blockchain have played an essential role in this transformation. Arwani and Priyadi (2024) emphasized in their research that the blockchain system is one of the main driving forces in this transformation.

Blockchain technology, which was first implemented in 2008 to record the Bitcoin cryptocurrency, has developed into a technology that has the potential to increase security, transparency, and efficiency in various applications (Alammary et al., 2019). Thanks to the unique capabilities of blockchain, blockchain technology has been utilized in various fields, such as research by Bhaskar et al. (2020) and Hyvärinen et al. (2017) on blockchain adoption in finance, research by Alketbi et al. (2018) on government, research by Mettler (2016) on the health sector, and research by Mahankali and Chaudhary (2020) on the education sector. Experts estimate that by 2025, blockchain technology will control 10% of the world's GDP (Bhaskar et al., 2020; Tapscott & Tapscott, 2017). The education sector is one field with great potential in adopting the blockchain system. As competition and adoption of new technologies increase, the education sector faces new challenges (Cahyadi et al., 2021; Mohammed et al., 2020), especially in terms of openness and transparency, and the validity of certification (Ahdiyatuningsih & Yetmi, 2020; Cahyadi et al., 2021).

Responding to these conditions, Cahyadi et al. (2021) stated in their journal that implementing blockchain in education can overcome various problems by improving the quality of data collection and assessment. Blockchain technology also offers various benefits in increasing academic data management's efficiency, security, and transparency (Alammary et al., 2019). The success of blockchain implementation has been proven by several foreign universities, such as Nicosia University (Chen et al., 2018; Sharples & Domingue, 2016) and the Massachusetts Institute of Technology (MIT), which is a pioneer in the development and implementation of standards for issuing and verifying digital certificates (MIT, 2020). MIT even developed a unique website (credentials.mit.edu) for certificate verification. The use of blockchain technology for issuing diplomas and certificates continues to increase yearly (Bandara et al., 2018; Budhiraja & Rani, 2020; Curmi & Inguanez, 2018). Several studies have shown that blockchain technology can weaken the role of traditional formal educational institutions (Nespor, 2019).

Yang's (2022) research proves that blockchain technology can change the role of traditional formal educational institutions and improve the efficiency of financial management, data, and information in the education system. The financial system in universities and educational institutions has the potential to experience significant improvements through this technology. The application of blockchain in financial management can ensure the security and accuracy of financial data in higher education through its decentralized and transparent nature, which allows for more effective transaction tracking, strengthening data integrity and improving overall financial oversight. Higher education institutions can optimize various budgeting, auditing, and performance management processes by utilizing blockchain capabilities to make financial operations more efficient and secure. Thus, blockchain technology offers a promising solution for revolutionizing the financial system in higher education.

Although the literature on the blockchain continues to grow (Angelis & Ribeiro da Silva, 2019; Janssen et al., 2020; Ramos & Queiroz, 2022), its implementation in the education sector is still in its early stages (Alammary et al., 2019; Han et al., 2018; Ramos & Queiroz, 2022). This condition is caused by the hesitation of most educational institutions to adopt blockchain applications. (Knauer & Mann, 2020). According to Alammary et al. (2019), scalability issues and technical complexity requiring specialized expertise are the main barriers to blockchain adoption.

Amidst the diverse studies of blockchain technology, this study brings a different perspective from previous studies. It refers to the research of Abu Afifa et al. (2022), which explores blockchain in banking accounting; the study of Bhaskar et al. (2020), which examines the potential of blockchain in the education sector; and the study of Alazab et al. (2021), which examines the implementation of blockchain in supply chain management.

The novelty of this study lies in the specific study of the determining factors in adopting blockchain technology in the financial management of private higher education institutions, using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework developed by Venkatesh et al. (2003) as its analytical model. This approach has not been widely explored in the academic literature, especially in the context of blockchain implementation in higher education institutions.

This study aims to evaluate and obtain empirical data on the influence of performance expectancy, effort expectancy, and social influence on the Intention to use blockchain in private higher education institutions to implement blockchain in financial accounting systems. The selection of three leading indicators of the UTAUT model in this study is based on several considerations supported by previous studies. Venkatesh et al.'s (2016) research in MIS Quarterly states that simplifying the UTAUT model can produce a more focused and in-depth analysis, mainly when applied to specific contexts such as blockchain. The findings of Fedorko et al. (2021) strengthen this argument by showing that these three indicators significantly influence the adoption of financial system technology. This theoretical understanding can provide valuable insights for organizations and technology developers in designing and implementing systems more aligned with user needs and preferences (Venkatesh et al., 2016).

In this study, performance expectancy is defined as the level of a person's belief that using a system will optimize job performance and facilitate goal achievement (Venkatesh et al., 2003). In the context of blockchain adoption in higher education institutions, performance expectancy reflects the potential for improving academic and administrative performance (Alalwan et al., 2018). According to Abu Afifa et al. (2022) in his research, performance expectancy significantly correlates with the success of blockchain technology adoption at both individual and organizational levels. Based on the literature review, this study proposes the following hypothesis:

H_1: Performance Expectancy has a significant favourable influence on Intention to Use Intention to adopt blockchain among employees College.

Effort expectancy is the ease of using a system (Venkatesh et al., 2003) and is a critical factor in adopting new technologies. Easy-to-use technologies are more quickly adopted and integrated into daily routines (Alam et al., 2021). Queiroz and Wamba's (2019) study found that college employees tend to accept blockchain applications when the technology makes tasks more accessible and less complicated. Abu Afifa et al.'s (2022) study strengthens these findings by proving the positive impact of ease of use on adoption intentions for blockchain technology in finance. Perceived low effort in using blockchain will increase adoption

intentions in the college environment. Based on this, this study proposes the following hypothesis:

H_2: Effort Expectancy significantly influences college employees' Intention to use blockchain.

Social influence shows the influence of essential people in a social environment on adopting a new technology system (V. Venkatesh et al., 2003). According to Rana et al. (2017), friends and family are sources of social influence. Research by Abu Afifa et al. (2022) proves the positive influence of social influence in the accounting context. The solid social influence that supports the use of blockchain will increase adoption intentions in the college environment. Based on this, this study proposes the following hypothesis:

H_3: Social Influence significantly influences college employees' Intention to use blockchain.

METHOD

This research has examined the Intention of private universities in Indonesia to implement blockchain technology in financial accounting systems by utilizing the UTAUT framework. Data collection was conducted through a survey using a validated questionnaire on 136 heads of finance departments in private universities, using the criteria that respondents had served for at least 1 year to ensure adequate understanding in answering the research questionnaire.

Responses to questions in the questionnaire were measured using a five-point Likert scale, where one represents "strongly disagree," and five represents "strongly agree." The 5-point Likert scale was chosen because, according to studies by Revilla et al. (2014) and Hair et al. (2021), if researchers want to use an agree-disagree assessment scale, it is better to use a 5-point Likert scale. After all, researchers can obtain more accessible data to interpret and conduct statistical analysis. Intention to Use was measured using an instrument developed by V. Venkatesh et al. (2003), consisting of three indicators: performance expectancy, effort expectancy, and social influence using SmartPLS.

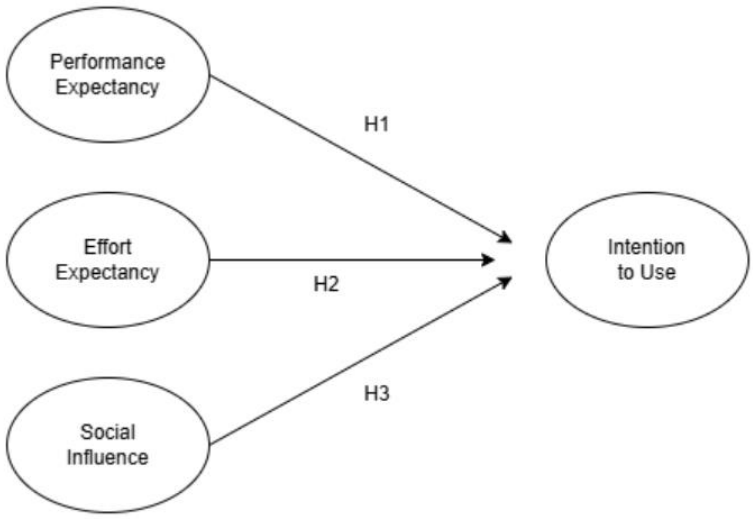

Figure 1. Conceptual Framework

RESULTS AND DISCUSSION

Table 1 shows the results of the descriptive analysis in this study. The analysis reveals that t he respondents' responses to each variable are at a medium level, with an average value of 3 to 4. Respondents' understanding of the research variables shows high results. The performance expectancy variable recorded the highest value with an average of 4.074, indicating respondents' firm belief that the implemented system positively impacts performance in private universities.

Hypothesis testing is carried out after the indicators have passed the outer model evaluation, which includes validity and reliability tests (Hair Jr et al., 2023). Convergent and discriminant validity are the two main aspects of validity testing. Table 2 shows the results of the convergent validity test, which focuses on outer loadings and Average Variance Extract (AVE). Hair Jr et al. (2014) set the outer loading and AVE standards above 0.5. All research indicators meet the validity test criteria to be used in further analysis.

Table 1. Descriptive Statistics

	Min	Max	Mean	Std. Devotion
Performance Expectancy	1.00	5.00	4,074	0.857
Effort Expectancy	1.00	5.00	3,896	0.819
Social Influence	1.00	5.00	3,304	1,091
Intention to Use	1.00	5.00	3,844	0.885

Source: Output of SmartPLS v4.0

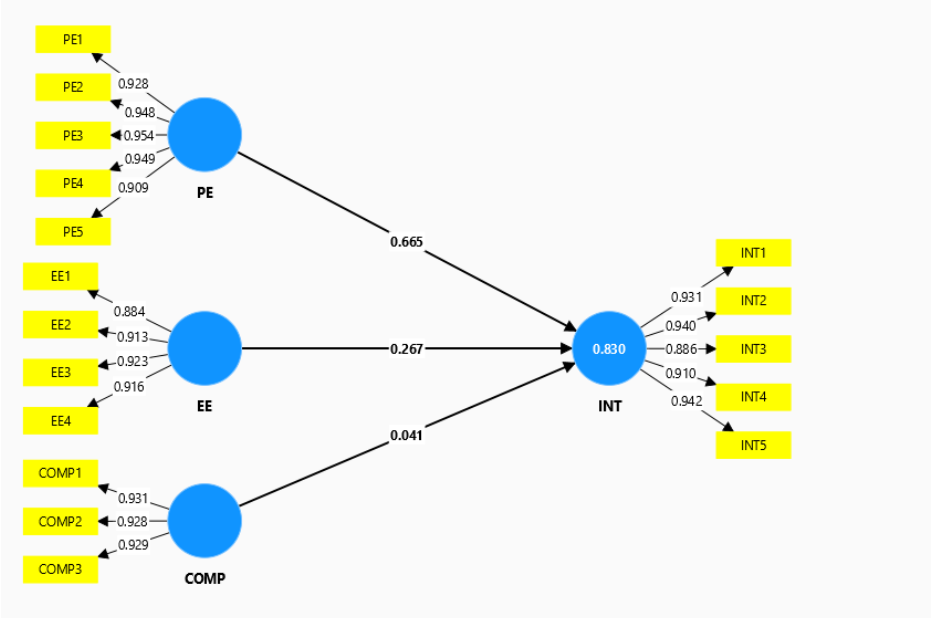

Figure 2. Outer loading

Codes	Indicators	Outer Loading
Performance expectancy (PE) - AVE: 0.879		
PE1	Using blockchain technology as intended in the operational definition will enable my college to improve financial services.	0.928
PE2	Using blockchain technology as intended in the operational definition will facilitate the provision of financial services at my university.	0.948
PE3	Using blockchain technology as intended in the operational definition will increase the efficiency and effectiveness of work for my college.	0.954
PE4	Using blockchain technology as intended in the operational definition will facilitate the provision of my college's accounting activities and financial services.	0.949
PE5	Using blockchain technology as intended in the operational definition will enable my college to improve its performance.	0.909
Effort Expectancy (EE) - AVE: 0.826		
EE1	My college will find it easy to use blockchain technology as defined in the operational definition for financial services activities.	0.884
EE2	I feel that my college is easy to use blockchain technology as intended in the operational definition for financial services.	0.913
EE3	It would be easy for my college to become an expert in using blockchain technology as intended in the operational definition.	0.923
EE4	Based on the operational definition, my college will quickly learn blockchain technology as intended.	0.916
Social Influence (COMP) - AVE: 0.864		

Codes	Indicators	Outer Loading
COMP1	Blockchain technology is conceptually difficult to understand As defined in the operational definition. 0.931 COMP2 Blockchain technology is difficult to apply to my college, as defined in the operational definition.	0.928
COMP3	Using blockchain technology as intended in the operational definition is too costly.	0.929
Intention to Use (INT) - AVE: 0.851		
INT1	My college intends to use blockchain technology as defined in the operational definition for application to financial services.	0.931
INT2	My college plans to use blockchain technology as defined in the operational definition to apply to accounting services.	0.940
INT3	In the next 2-5 years, my university will use blockchain technology as defined in the operational definition of financial services.	0.886
INT4	As referred to in the operational definition, blockchain technology is feasible or worthy of being adopted in the financial services system at my college.	0.910
INT5	My college will use blockchain technology as defined in the operational definition in the future.	0.942

Table 2. Outer loading

In testing discriminant validity, two commonly used methods are the fornell-lac ker criterion and the heterotrait-monotrait ratio (HTMT). According to Fornell and Larcker (1981), a construct has adequate discriminant validity if the square root value of the Average Variance Extracted (AVE) of the construct exceeds its correlation value with other constructs in the model being tested. Based on the data presented in table 3, it can be concluded that all reliability test results are by previously established standards.

	Social Influence	Effort Expectancy	Intention to Use	Performance Expectancy
Social Influence	0.930			
Effort Expectancy	0.410	0.909		
Intention to Use	0.353	0.825	0.922	
Performance Expectancy	0.305	0.814	0.814	0.938

Source: Output of SmartPLS v4.0

Table 3. Discriminant Validity - Fornell Lacker

Construct	Cronbach Alpha	Composite Reliability
Performance Expectancy	0.966	0.967
Effort Expectancy	0.930	0.931
Social Influence	0.922	0.950
Intention to Use	0.956	0.957

Source: Output of SmartPLS v4.0

Table 4. Reliability

Discriminant validity is the final stage in external model testing. Hair Jr et al. (2014) proposed measurement through Cronbach alpha and composite reliability with a minimum threshold of 0.6. Table 4 shows that all reliability test results meet the established criteria.

Collinearity analysis is an essential step before hypothesis testing. Hair et al. (2019) identified collinearity as a significant issue that can disrupt the structural model. The model can be declared free from collinearity problems when the VIF value is three or less.

The analysis shows that all VIF values are below 3, proving the model is free from collinearity problems. Table 5 presents the results of the coefficient of determination (R2) to measure the variance in each endogenous construct. Shmueli and Koppius (2011) determined this model as an indicator of the strength of the explanatory model. The analysis results show that the EE variable is approaching moderate, PE shows a reasonably strong influence, and COMP has a feeble influence.

		Original Samples	P-Value	Conclusion
Direct Effects				
Performance Expectancy ➔Intention to Use	H1	0.665	0.000	Supported
Effort Expectancy ➔Intention to Use	H2	0.267	0.000	Supported
Social Influence ➔Intention to Use	H3	0.041	0.160	Not Supported
R-Square				
Intention to Use			0.830	

Source: Output of SmartPLS v4.0

Table 5. Hypothesis Test and Coefficient of Determination (R 2)

The results of this study indicate that all indicators have excellent convergent validity, with outer loading above 0.8 for all constructs. Especially PE3 (0.954) and INT5 (0.942) show the highest correlation. These results align with Abu Afifa et al. (2022) research, which states that performance expectancy positively affects Intention to use in accounting information systems (H1), where performance expectancy plays a vital role in adopting blockchain technology in accounting. Venkatesh et al. (2003) argue that people will be more willing to adopt new technology if they believe it will help improve their work effectiveness. Watson and Mishler (2017) underline the challenges accountants face in managing the increasing volume of transaction data and preparing financial reports promptly. Blockchain offers a solution by enabling reporting automation and creating a real-time, verifiable, and transparent accounting ecosystem (Dai & Vasarhelyi, 2017). Factors such as previous experience, voluntary use, and conditions that facilitate blockchain implementation also shape performance expectancy. (Venkatesh et al., 2003) . Thus, understanding and managing performance expectancy is critical to accelerating blockchain adoption in financial accounting systems in higher education, which has the potential to change the way accounting professionals work significantly.

Next is the effect of effort expectancy on Intention to use (H2). The results of the inner model analysis show that effort expectancy has a positive effect on Intention to use. Based on these results, private universities believe that the results arising from blockchain adoption can reduce workload and facilitate accounting tasks. However, the findings of this study differ from the research of Yusof et al. (2018), which stated an irrelevant relationship between effort expectancy and Intention to use. A lack of user interaction and understanding of the use of the technology causes blockchain in Malaysian banking institutions.

However, in the context of private universities in Indonesia, this study identified a significant influence between Effort expectancy and Intention to use. Venkatesh et al. (2003) stated that the more straightforward and effortless a technology is to learn, the greater the user's desire to use it. This has strategic value in higher education because technological innovation can enrich the learning and teaching process (Bervell & Umar, 2017) and improve employees' operational and work effectiveness (Alammary et al., 2019). To maximize the use of blockchain technology, universities can focus on ease of use, supported by good training and smooth integration (Ifinedo et al., 2018). This can encourage the Intention of accounting Staff to adopt blockchain technology.

Regarding the impact of social influence on Intention to use (H3), the inner model analysis results indicate no significant correlation between social influence and Intention to use blockchain in private universities in Indonesia in the context of accounting information systems. This finding is different from the results of Venkatesh et al. (2003), who found a positive relationship between social influence and Intention to use in the context of corporate companies.

This difference in findings needs to be underlined, as the respondents of this study were heads of finance departments in private universities who had served for at least one year. Heads of finance departments generally have sufficient experience in information technology and accounting systems decision-making, so they rely more on professional judgment than social influence. This is in line with the argument of Venkatesh et al. (2003) that the intensity of social influence tends to decrease along with the accumulation of individual experience in a particular position or role. Individuals tend to be more sensitive to the opinions of others when individuals are just starting to use technology (Hartwick & Barki, 1994; Venkatesh et al., 2003).

The results that do not match the hypothesis are exciting findings in the study and open up further discussion about the factors that influence blockchain adoption in private higher education environments, especially in the context of accounting information systems. Further research must explore factors that are more influential in blockchain adoption in private higher education.

CONCLUSION

This study investigates the elements that contribute to the propensity of private higher education institutions in Indonesia to implement blockchain technology in their financial systems by applying the UTAUT framework. The research findings reveal that performance expectancy strongly impacts the Intention to use blockchain technology. This suggests that private universities view the potential for increased efficiency as a primary motivation for adopting blockchain.

Furthermore, effort expectancy also shows a significant favourable influence on usage intention. This illustrates that the perception of ease of operating blockchain technology plays a crucial role in adopting it.

On the other hand, this study found that social influence did not significantly impact the Intention to use blockchain. This observation suggests that internal factors and practical benefits, rather than pressure from the social environment, influence the decision to adopt blockchain in the college environment.

This study provides valuable insights for university leaders and policymakers into the factors influencing blockchain adoption in Indonesia's private higher education sector. To increase adoption rates, universities should be provided with an understanding of blockchain technology's performance and effort expectancy. However, this study has limitations regarding geographic coverage and the types of institutions studied. Future studies can expand the scope to public universities and broader geographic areas and consider additional factors such as data security and government regulations in blockchain adoption in the education sector.

REFERENCES

Abu Afifa, M., Vo, H., & Le, T. (2022). Blockchain adoption in accounting by an extended UTAUT model: empirical evidence from an emerging economy. *Journal of Financial Reporting and Accounting*, -, 1-40. https://doi.org/10.1108/JFRA-12-2021-0434

Ahdiyatuningsih, N., & Yetmi, YS (2020). The Model of Empowering Poor Women Based on Creative Economy and Local Age. *Aptisi Transactions on Technopreneurship (ATT)*, *2* (1), 75-86. https://doi.org/10.34306/att.v2i1.72

Alalwan, AA, Dwivedi, YK, Rana, NP, & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, *40*, 125-138.

Alam, MMD, Alam, MZ, Rahman, SA, & Taghizadeh, SK (2021). Factors influencing mHealth adoption and its impact on mental well-being during COVID-19 pandemic: A SEM-ANN approach. *Journal of Biomedical Informatics*, *116*, 103722.

Alammary, A., Alhazmi, S., Almasri, M., & Gillani, S. (2019). Blockchain-Based Applications in Education: A Systematic Review. *Applied Sciences*, *9* (12), 2400. https://www.mdpi.com/2076-3417/9/12/2400

Alazab, M., Alhyari, S., Awajan, A., & Abdallah, A.B. (2021). Blockchain technology in supply chain management: an empirical study of the factors influencing user adoption/acceptance. *Cluster Computing*, *24* (1), 83-101.

Alketbi, A., Nasir, Q., & Talib, M.A. (2018, 25-26 Feb. 2018). Blockchain for government services — Use cases, security benefits and challenges. 2018 15th Learning and Technology Conference (L&T),

Angelis, J., & Ribeiro da Silva, E. (2019). Blockchain adoption: A value driver perspective. *Business Horizons*, *62* (3), 307-314. https://doi.org/https://doi.org/10.1016/j.bushor.2018.12.001

Argani, A., & Taraka, W. (2020). Utilization of blockchain technology to optimize certificate security in higher education. *ADI Bisnis Digit. Interdisciplinary J*, *1* (1), 10-21.

Arwani, A., & Priyadi, U. (2024). Exploring the Role of Blockchain Technology in Enhancing Transparency and Accountability in Islamic Finance: A Systematic Review. *Journal of Business Economics and Management*, *2* (2), 23-37. https://doi.org/10.59024/jise.v2i2.653

Bandara, I., Ioras, F., & Arraiza, M. P. (2018). The emerging trend of blockchain for validating degree apprenticeship certification in cybersecurity education. INTED2018 Proceedings,

Bervell, B., & Umar, IN (2017). Validation of the UTAUT model: Re-considering non-linear relationships of exogenous variables in higher education technology acceptance research. *EURASIA Journal of Mathematics, Science and Technology Education*, *13* (10), 6471-6490.

Bhaskar, P., Tiwari, C.K., & Joshi, A. (2020). Blockchain in education management: present and future applications. *Interactive Technology and Smart Education*, *18* (1), 1-17.

Budhiraja, S., & Rani, R. (2020). TUDocChain-securing academic certificates digitally on the blockchain. Inventive Computation Technologies 4,

Cahyadi, D., Faturahman, A., Haryani, H., Dolan, E., & Millah, S. (2021). BCS: Blockchain Smart Curriculum System for Verification of Student Accreditation. *International Journal of Cyber and IT Service Management*, *1* (1), 65-83. https://doi.org/10.34306/ijcitsm.v1i1.20

Chen, G., Xu, B., Lu, M., & Chen, N.-S. (2018). Exploring blockchain technology and its potential applications for education. *Smart Learning Environments*, *5* (1), 1. https://doi.org/10.1186/s40561-017-0050-x

Curmi, A., & Inguanez, F. (2018). Blockchain-based certificate verification platform. International Conference on Business Information Systems,

Dai, J., & Vasarhelyi, M. A. (2017). Toward blockchain-based accounting and assurance. *Journal of information systems*, *31* (3), 5-21.

Fedorko, I., Bačik, R., & Gavurova, B. (2021). Effort expectancy and social influence factors are the main determinants of performance expectancy using electronic banking. *Banks and Bank Systems*, *16* (2), 27.

Fornell, C., & Larcker, D. F. (1981). I am evaluating structural equation models with unobservable variables and measurement errors. *Journal of marketing research*, *18* (1), 39-50.

Hair, J.F., Astrachan, C.B., Moisescu, O.I., Radomir, L., Sarstedt, M., Vaithilingam, S., & Ringle, C.M. (2021). Executing and interpreting applications of PLS-SEM: Updates for family business researchers. *Journal of Family Business Strategy*, *12* (3), 100392.

Hair, J.F., Risher, J.J., Sarstedt, M., & Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31* (1), 2-24.

Hair Jr, J., Hair Jr, J.F., Sarstedt, M., Ringle, C.M., & Gudergan, S.P. (2023). *Advanced issues in partial least squares structural equation model*ling. Sage publications.

Hair Jr, J.F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V.G. (2014). Partial least squares structural equation modelling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26* (2), 106-121.

Han, M., Li, Z., He, J., Wu, D., Xie, Y., & Baba, A. (2018). *A Novel Blockchain-based Education Records Verification Solution* Proceedings of the 19th Annual SIG Conference on Information Technology Education, Fort Lauderdale, Florida, USA. https://doi.org/10.1145/3241815.3241870

Hartwick, J., & Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science*, *40* (4), 440-465.

Hyvärinen, H., Risius, M., & Friis, G. (2017). A Blockchain-Based Approach Towards Overcoming Financial Fraud in Public Sector Services. *Business & Information Systems Engineering*, *59* (6), 441-456. https://doi.org/10.1007/s12599-017-0502-4

Ifinedo, P., Pyke, J., & Anwar, A. (2018). Business undergraduates' perceived use outcomes of Moodle in a blended learning environment: The roles of usability factors and external support. *Telematics and Informatics*, *35* (1), 93–102.

Janssen, M., Weerakkody, V., Ismagilova, E., Sivarajah, U., & Irani, Z. (2020). A framework for analyzing blockchain technology adoption: Integrating institutional, market and technical factors. *International Journal of Information Management*, *50*, 302-309. https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2019.08.012

Knauer, F., & Mann, A. (2020). What is in It for Me? Identifying Drivers of Blockchain Acceptance among German Consumers. *The Journal of the British Blockchain Association*, *3* (1), 1-16. https://doi.org/10.31585/jbba-3-1-(1)2020

Mahankali, S., & Chaudhary, S. (2020). Blockchain in education: a comprehensive approach–utility, use cases, and implementation in a university. In *Blockchain technology applications in education* (pp. 267-293). Global IGI.

Mettler, M. (2016, Sept. 14-16, 2016). Blockchain technology in healthcare: The revolution starts here. 2016 IEEE 18th International Conference on e-Health Networking, Applications and Services (Healthcom),

MIT, L.M. (2020). https://www.media.mit.edu

Mohammed, D., Aisha, N., Himki, A., Dithi, A., & Ardianto, AY (2020). Blockchain Is the Top Skill For 2020. *Aptisi Transactions on Technopreneurship (ATT)*, *2* (2), 180–185. https://doi.org/10.34306/att.v2i2.101

Nespor, J. (2019). Cyber schooling and the accumulation of school time. *Pedagogy, Culture & Society*, *27* (3), 325–341.

Queiroz, M. M., & Wamba, S. F. (2019). Blockchain adoption challenges in the supply chain: An empirical investigation of the main drivers in India and the USA. *International Journal of Information Management*, *46*, 70-82.

Ramos, CR d. S., & Queiroz, M.M. (2022). Blockchain in education: the influence of trust on adoption and implementation. *RAUSP Management Journal*, *57*, 316–331.

Rana, N. P., Dwivedi, Y. K., Lal, B., Williams, M. D., & Clement, M. (2017). Citizens' adoption of an electronic government system: Towards a unified view. *Information Systems Frontiers*, pp. *19*, 549–568.

Revilla, M. A., Saris, W. E., & Krosnick, J. A. (2014). I am choosing the number of categories in agree-disagree scales. *Sociological methods & research*, *43* (1), 73-97.

Sharples, M., & Domingue, J. (2016). The blockchain and kudos: A distributed system for educational record, reputation and reward. Adaptive and Adaptable Learning: 11th European Conference on Technology Enhanced Learning, EC-TEL 2016, Lyon, France, September 13-16, 2016, Proceedings 11,

Shmueli, G., & Koppius, O. R. (2011). Predictive analytics in information systems research. *MIS Quarterly*, 553-572.

Tapscott, A., & Tapscott, D. (2017). How blockchain is changing finance. *Harvard Business Review*, *1* (9), 2-5.

Venkatesh, M., Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, *27* (3). https://doi.org/10.2307/30036540

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17* (5), 328-376.

Watson, L. A., & Mishler, C. (2017). Get ready for blockchain: Should management accountants add blockchain technology to their professional vocabulary? *Strategic Finance*, *98* (7), 62–64.

Yang, G. (2022). Optimization of university financial services using blockchain technology. *Scientific Programming*, *2022* (1), 2680366.

Yatim, A., Nurkholis, FM, & Setiawan, A. (2018). Innovation in university in the era of Industry 4.0.

Yusof, H., Munir, M., Zolkaply, Z., Jing, C., Hao, C., Ying, D., Zheng, L., Seng, L., & Leong, TK (2018). Behavioural Intention to adopt blockchain technology: Viewpoint of the banking institutions in Malaysia. *International Journal of Advanced Scientific Research and Management*, *3* (10), 274–279.