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ASSESSING WORKFORCE READINESS FOR BLOCKCHAIN ADOPTION IN FOOD LOGISTICS: A CASE STUDY OF BULOG BANDUNG USING THE TRI 2.0

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Abstract

The effectiveness and clarity of food logistics management, especially at BULOG Bandung, present notable challenges that call for the integration of blockchain technology. This research assesses the readiness of BULOG Bandung's workforce for the adoption of blockchain by utilizing the Technology Readiness Index (TRI) 2.0 framework. A quantitative research methodology was applied, which involved structured surveys and statistical analysis using Pearson correlation to evaluate employees' readiness. The results reveal a moderate level of technological readiness with an overall TRI score of 3.12. The dimensions of Optimism (3.42) and Innovativeness (3.25) suggest that employees possess a favorable view of technology, while Discomfort (2.92) and Insecurity (3.27) indicate apprehensions related to digital transformation. Analysis using Pearson correlation demonstrated a significant association between TRI dimensions and the willingness to adopt blockchain ($r = 0.38$, $p < 0.05$). These findings underscore the necessity for focused training initiatives, pilot blockchain projects, and technical assistance to boost employee confidence. Future investigations should examine the long-term behavioral adjustments and organizational elements that affect blockchain adoption in the logistics sector.

Keywords: ***Blockchain, BULOG, Digital Transformation, Logistics Management, Technology Readiness Index***

INTRODUCTION

Rice is a vital staple food in Indonesia, with most of the population depending on it as a main source of food (Hasanah, 2022). In 2022, Indonesia's rice production grew by 0.59% compared to the previous year, totaling 31.54 million tons (Badan Pusat Statistik, n.d.). However, ensuring effective and transparent distribution of rice, and other essential goods, continues to be a challenge, especially for state-owned enterprises like Perum BULOG, which responsible for the logistics and distribution of staple foods, including rice (Christine & Apriwandi, 2022). BULOG's responsibilities include ensuring stock availability, stabilizing prices, and supporting food security, making a transparent and efficient logistics management system essential (Tennis et al., 2023). Based on interview with an administrative staff member at BULOG Bandung, current Warehouse Management Systems (WMS) utilized by BULOG rely mainly on Enterprise Resource Planning (ERP) for tracking the inventory of incoming and outgoing goods.

However, this system fails to record rejected products or consumer complaints, which interferes with data precision and traceability. This is the main problem because logistics tasks need to be meticulously documented. Comprehensive logistics records are more than just storage; they are essential for enhancing operational efficiency, ensuring data precision, promoting transparency, and providing the company with a competitive edge. Additionally, the centralized design of ERP systems makes them susceptible to operational disruptions when technical problems arise at the central server. To overcome these challenges, blockchain technology has been proposed as a promising solution to improve transparency, security, and efficiency within supply chain management (Subramanian, Chaudhuri, & Kayıkcı, 2020). In contrast to ERP systems, which are usually confined to internal operations at BULOG, blockchain enables engagement from all of BULOG's partners. This implies that data entry and verification is not only the responsibility of BULOG, as external partners are also able to securely input and access data in a decentralized way. In the future, blockchain will be essential for ensuring accountability in various situations. If an

issue occurs in BULOG's operations, the blockchain system allows for the direct identification of the responsible party. This facilitates quicker and more effective problem resolution, as every transaction and data entry is securely documented and can be traced (Subramanian, Chaudhuri, & Kayıkcı, 2020),

Blockchain technology provides a permanent ledger that records transactions securely and transparently, facilitating improved tracking of products and decreasing the likelihood of data manipulation (Afdilah et al., 2024; Apriani et al., 2023; Subramanian, Chaudhuri, & Kayıkcı, 2020). Prior research has highlighted blockchain's ability to enhance food supply chains by ensuring traceability, reducing fraud, and increasing consumer confidence (Afdilah et al., 2024; Subramanian, Chaudhuri, & Kayıkcı, 2020). Nonetheless, the effective implementation of blockchain is significantly influenced by the preparedness of human resources to adopt this technology (Qadrya, 2018). The Technology Readiness Index (TRI) serves as a commonly utilized framework for evaluating the readiness for technological adoption, classifying individuals according to their optimism, innovativeness, discomfort, and insecurity regarding new technologies (Parasuraman and Colby, 2015). Integrating blockchain into the food supply chain is fundamentally challenging because of the complexities involved in data sharing among various stakeholders (Dietrich et al., 2022). The framework needs to support a wide range of participants—like suppliers, distributors, regulators, and retailers—who each provide and access information at various points, necessitating a strong level of interoperability, transparency, and trust (Rachmaniah et al., 2022).

This research aims to evaluate the preparedness of BULOG Bandung's employees for the implementation of blockchain technology, utilizing the TRI 2.0 framework. It will also investigate the relationship between personal TRI scores and the probability of blockchain being adopted in the next five years. Planning for technology adoption in the industry typically involves a five-year timeframe to guarantee that the organization is prepared in terms of its structure, systems, and resources. This approach is consistent with the Technology-Organization-Environment (TOE) framework (Dietrich et al., 2022), which asserts that the complexity of technology, the readiness of the organization, and pressures from the environment are crucial factors in the adoption process. The uniqueness of this study is found in its utilization of TRI 2.0 within the area of food logistics, an area where blockchain adoption remains relatively low. In contrast to earlier research that concentrated on sectors with well-established blockchain integration, this study offers empirical evidence regarding the preparedness of the workforce prior to adopting blockchain technology. The results will help in composing strategies for employee training and policy development to support digital transformation in the management of food logistics. This research assesses the technological readiness of BULOG Bandung's staff, establishing a basis for future strategies to implement blockchain while highlighting the critical role of employee preparedness in achieving successful digital transformation in supply chain management.

LITERATURE REVIEW

Logistics Management System

Logistics management can be carried out through a system that harmonizes different logistics activities effectively within an organization. This system is designed to oversee and manage logistics operations to attain efficiency and meet logistics goals, such as minimizing costs and maximizing inventory storage (Laurensius et al. et al., 2024). The idea behind a logistics management system is rooted in the understanding that a coordinated system can produce superior outcomes compared to disjointed activities (Laurensius et al. et al., 2024). Integrated logistics is made up of two primary elements: logistics operations and logistics coordination (Zai et al., 2022). Logistics operations focus on overseeing the movement and storage of products, encompassing transportation and the final delivery to customers (Zai et al., 2022). On the other hand, logistics coordination pertains to the planning that unifies all logistics operations to ensure continuity, which includes market forecasting, order management, operational planning, and procurement (Laurensius et al. et al., 2024; Zai et al., 2022).

Blockchain in Food Supply Chains

The use of blockchain technology in food supply chains facilitates direct oversight of the entire supply chain process (Dietrich et al., 2022). Companies can enter data while ensuring the security of their privacy (Rahardja et al., 2020). Participants in the supply chain can authenticate each phase from the initial point to the end user, allowing retailers to communicate information with consumers (Rachmaniah et al., 2022). However, before any data from each phase is recorded on the blockchain, all information must be validated by every participant in the network, guaranteeing that consumers receive comprehensive and uninterrupted information (Almasoud et al., 2020; Subramanian, Chaudhuri, & Kayikci, 2020). Consequently, a transparent and detailed record of each step builds consumer confidence (Mahyuni et al., 2024).

Blockchain technology has the capacity to transform how food-related data is recorded and managed, with each participant in the network holding their own records (Arwin et al., 2023). This approach allows for complete tracking of food from its origin to the final consumer (Paramita, 2023). Such functionality improves the capability of various organizations to oversee food traceability, ensuring that ingredients comply with safety protocols and legal regulations (Bodkhe et al., 2020). Businesses can readily set themselves apart from their rivals through transparency and the monitoring of product movement, thereby safeguarding their brand image (Dutta et al., 2020).

Food Product Standards

Food fraud leads to economic disadvantages and also risks human health (Dutta et al., 2020). Consumers are more frequently seeking guarantees that their food sources meet recognized standards (Behnke & Janssen, 2020). Consequently, both consumers and producers acknowledge that food product standards are an essential measure of quality (Lin et al., 2021). One widely employed method for verifying food authenticity is spectroscopy, which acts as a unique identifier for food quality assurance and compliance with regulations (Dutta et al., 2020). For example, Walmart has experimented with blockchain technology to monitor agricultural products in China (Xu et al., 2020). The findings enabled Walmart to obtain details such as suppliers, cultivation areas, and individuals that supervised the food supply chain process (Raza et al., 2020). This functionality arises from blockchain's capacity to permanently record all transactions, allowing for the identification of product origins and enhancing traceability systems (Lase et al., 2021).

Technology Readiness Index 2.0

The evaluation approach for determining readiness levels, particularly within the industrial sector, has been investigated in various studies (Wahyu and Pinardi, 2024). Readiness levels assess an organization's or technology's preparedness for implementing specific changes (Wahyu and Pinardi, 2024). Typically, readiness levels assess an organization's capability to confront transformations or challenges (Mladenova, 2022). In the context of technology, the Technology Readiness Index (TRI) refers to the readiness of human resources for accepting more advanced and interconnected technologies (Wibisono, 2024). TRI was originally presented by Parasuraman in 2000 and subsequently updated in 2012 to create TRI 2.0, which aligns with advancements in technology (Parasuraman, 2000). The update was essential since certain statements in the initial TRI were no longer applicable. Consequently, it needs some improvement to accurately represent contemporary technologies (Parasuraman and Colby, 2015). This improvement ensured that TRI 2.0 is more relevant and effective in evaluating technology readiness in the current digital era. TRI serves as a tool to assess the technological readiness of internal stakeholders, such as staff, within a company (Parasuraman, 2000). Understanding thoroughly into employee readiness is crucial for making smart choices, such as planning, executing, and overseeing employee-technology interactions (Deni, 2023). Personnel who possess excellent interpersonal abilities and a high level of technology readiness are generally more successful in technology-support positions compared to those who lack in one or both areas (Handayani, 2024).

METHOD

This research uses a quantitative approach to evaluate the preparedness of BULOG Bandung's staff for the implementation of blockchain technology. The study took place between October 2024 and March 2025 at BULOG's Bandung location and its main warehouse in Cimahi, Indonesia. Survey methods were employed to gather primary data from employees of BULOG. The research design employs a survey-based approach utilizing the Technology Readiness Index (TRI) 2.0 framework. The TRI 2.0 survey consists of four primary dimensions: optimism (OPT), innovativeness (INN), discomfort (DIS), and insecurity (INS), which together assess a person's preparedness for adopting technology (Parasuraman and Colby, 2015).

$$TRI = \frac{(OPT + INN + (6 - DIS) + (6 - INS))}{4} \quad (1)$$

Higher TRI values suggest a stronger willingness to embrace new technology (Parasuraman and Colby, 2015). The TRI scores were classified using the following criteria (Parasuraman and Colby, 2015):
- High Readiness: TRI ≥ 3.25
- Moderate Readiness: 2.83 ≤ TRI < 3.25
- Low Readiness: TRI < 2.83

In order to confirm the validity and reliability of the results, a Cronbach's Alpha test was performed, with a reliability coefficient of 0.60 or above means that it was acceptable (Rahmadi & Mutasowifin, 2021). Additionally, the study employed Pearson's correlation to assess the significance of the relationships between the TRI dimensions

and the tendencies for blockchain adoption, setting the significance threshold at $p < 0.05$ (Nurhaswinda et al., 2025). The organized methodology of this study guarantees that the results are sufficient in empirical evidence, thoroughly examined, and scientific. Using statistical precision and recognized research techniques, this research delivers a dependable evaluation of human resources preparedness for blockchain integration in BULOG Bandung's logistics management system. Table 1 presents the instrument used for the TRI 2.0. The survey was given to 31 employees represent the entire workforce at BULOG Bandung to gather a thorough understanding of their readiness for technology. The survey was given to 31 employees represent the entire workforce at BULOG Bandung to gather a thorough understanding of their readiness for technology.

Table 1. TRI 2.0 Quesionnaire.

Dimension	Code	Statement
Optimism	OPT 1	I am convinced that blockchain technology will enhance logistics management systems (Parasuraman and Colby, 2015).
	OPT 2	Adopting this technology will lighten my responsibilities (Astiti et al., 2023).
	OPT 3	Technology provides me with greater control over my everyday life (Parasuraman and Colby, 2015).
	OPT 4	Technology increases my productivity in my personal affairs (Parasuraman and Colby, 2015).
Innovativeness	INN 1	My coworkers often look to me for guidance on logistics management technology (Parasuraman and Colby, 2015).
	INN 2	I believe I am among the pioneers in my workplace in embracing new technologies (Oktadini et al., 2022).
	INN 3	I typically grasp new high-tech products and services independently (Parasuraman and Colby, 2015).
	INN 4	I consistently stay informed about the most recent technological developments in my field of interest (Parasuraman and Colby, 2015).
Discomfort	DIS1	Occasionally, I feel like my coworkers who are more familiar with new technology are taking advantage of me (Parasuraman and Colby, 2015).
	DIS2	The technical support services often struggle to clarify new technologies in a way that is easy for me to grasp (Parasuraman and Colby, 2015).
	DIS3	At times, it seems that technology systems are not created with the everyday user in mind (Parasuraman and Colby, 2015).
	DIS4	There is a lack of straightforward manuals for advanced products or services that are written in plain language (Parasuraman and Colby, 2015).
Insecurity	INS1	I am concerned that relying too much on technology could expose existing systems to vulnerabilities during technical failures (Pires et al., 2023).
	INS2	Overuse of technology can interfere with people to such an extent that it becomes harmful (Parasuraman and Colby, 2015).
	INS3	Embracing technology might diminish the quality of interpersonal relationships among coworkers (Parasuraman and Colby, 2015).
	INS4	I lack confidence in managing inventory that depends entirely on technology without having a physical record or manual verification (Yang et al., 2021).

We created a scale to evaluate beliefs about blockchain and based the attributes on the Technology Readiness Index (TRI) framework developed by Parasuraman and Colby.

The procedure for data collection consisted of two key phases: 1) performing a pilot test to assess the reliability of the instrument, and (3) sending the finalized questionnaire to the intended respondents. This pilot test was carried out to conduct a reliability assessment using the same quantity of samples as the overall sample size, owing to the restricted number of participants. Responses to each survey were evaluated using a 5-point Likert scale,

with options ranging from "Strongly Disagree" to "Strongly Agree." The TRI score was determined using formula 1 (Parasuraman and Colby, 2015).

RESULTS AND DISCUSSION

TRI Score Analysis

The research evaluated the TRI 2.0 scores of 31 employees from BULOG Bandung. The overall average TRI score was calculated at 3.12, reflecting a moderate degree of technological readiness. Table 2 displays the average scores corresponding to each dimension of the TRI. Optimism received the highest score of 3.42, indicating a widespread belief in the beneficial effects of technology. Innovativeness had a score of 3.25, implying that employees exhibit a fair level of eagerness toward embracing new technologies. In contrast, Discomfort scored 2.92 and Insecurity scored 3.27, revealing that a portion of employees experience anxious regarding the implementation of blockchain.

Table 2. Company TRI Score.

Dimension	Average Score
Optimism	3.42
Innovativeness	3.25
Discomfort	2.92
Insecurity	3.27

The Discomfort variable has a score of 2.92, pointing to challenges in technology readiness, while the Insecurity variable scores 3.27. The relatively elevated score for Discomfort suggests that some employees may feel uneasy with new technology, potentially due to insufficient understanding or a lack of experience in utilizing digital tools. In contrast, the higher Insecurity score indicates worries regarding technology use, such as anxious about system failures or an overreliance on technology that could affect logistics operations.

Correlation Analysis

A Pearson correlation analysis was performed to examine the connection between TRI scores and employees' readiness to embrace blockchain technology in the next five years.

Table 3. Correlation Test Results

Pearson Correlation Score			
		TRI Score	Var1
TRI Score	Pearson Correlation	1	.380*
	Sig. (2-tailed)		0.035
	N	31	31
Var1	Pearson Correlation	.380*	1
	Sig. (2-tailed)	0.035	
	N	31	31
*. Correlation is significant at the 0.05 level (2-tailed).			

The correlation coefficient (r) was calculated to be 0.380, with a significant level of 0.035 ($p < 0.05$), indicating a moderately positive correlation between technological preparedness and the willingness to adopt blockchain.

Factors Relating to the Score

As a government-owned enterprise (BUMN), BULOG has a workforce that is primarily made up of older staff members. In contrast to private sector enterprises, which typically seek to hire younger professionals who are more adaptable to emerging technologies, BUMN employees are often less familiar with swift technological progress. Older workers may show greater resistance to change and be less motivated to allocate time for learning new digital tools (Stone et al., 2015), which might account for the average ratings in Innovativeness and the elevated feelings of Discomfort and Insecurity. BUMN organizations typically function with a more bureaucratic and hierarchical structure than private enterprises (Syahrul Ansari, 2019). The processes for making decisions are usually slower, and employees might have fewer motivations to actively pursue innovation (Burcharth et al., 2017). On the

other hand, private sector businesses often cultivate an environment of ongoing learning, motivating employees to enhance their skills and keep pace with technological advancements (Shan & Wang, 2024). The moderate Innovativeness score of BULOG (3.25) may stem from an absence of organized initiatives that encourage technological experimentation and implementation. The education level and familiarity with digital technology in Indonesia significantly influence the TRI scores (Hidayati & Saputra, 2020). Although younger individuals have improved access to digital education, a considerable portion of the workforce, especially those who have worked at BULOG for many years, might not have received formal training in new technologies. The information comes from an interview with a staff member, who noted that training usually spans six months while employees are actively working during the introduction of new technology. However, there was no indication of a structured training or assessment program. The scores for Discomfort (2.92) and Insecurity (3.27) reflect worries about the complexity of new systems and the possible dangers of relying on digital solutions. Employees may feel unprepared to navigate technological changes due to limited prior experience and insufficient training programs offered by the organization. The notably high Insecurity score implies that staff might lack trust in the dependability of technology-driven systems. This could be due to inadequate training programs that do not provide employees with the essential skills and assurance to engage with blockchain technology effectively. To tackle this challenge, it is necessary to implement thorough training initiatives, offer practical experience with new systems, and establish mentorship programs to support the changes into digital logistics management.

CONCLUSION

This research evaluates the technological preparedness of BULOG Bandung's personnel for the implementation of blockchain by employing the Technology Readiness Index (TRI) 2.0. The results show that the overall TRI score stands at 3.12, indicating a moderate level of preparedness among the staff. The Optimism dimension boasts the highest average score (3.42), implying that employees generally hold a favorable view of technology. The Innovativeness score (3.25) reflects that some staff members are open to embracing new technologies. Nonetheless, the Discomfort (2.92) and Insecurity (3.27) dimensions underscore potential obstacles, as certain employees experience unease and a lack of confidence in technological systems. A Pearson correlation analysis was performed to assess the association between individual TRI scores and each dimension of the TRI. The findings reveal moderate to strong correlations, with Optimism ($r = 0.519$, $p < 0.01$) and Innovativeness ($r = 0.607$, $p < 0.01$) demonstrating notable positive relationships with TRI scores. In contrast, Discomfort ($r = -0.612$, $p < 0.01$) and Insecurity ($r = -0.556$, $p < 0.01$) show significant negative correlations, indicating that increased levels of discomfort and insecurity lead to lower overall technological readiness. The greater the fear, discomfort, or lack of confidence toward technology, the lower their TRI score tends to be. The results indicate that BULOG ought to prioritize specialized training initiatives to alleviate discomfort and uncertainty among its staff. This involves organizing workshops, trial runs of blockchain applications, and programs to engage employees. Given that blockchain utilization in food logistics is still in the early stages, future research should focus on longitudinal studies that monitor employee preparedness over time. Examining external influences such as organizational culture and managerial support could yield further understanding of effective blockchain integration. These suggestions will assist BULOG and comparable organizations in formulating sustainable approaches for digital transformation in supply chain management.

REFERENCES

Afdilah, S., Agustina, N. S., Hani, I., & Gunawan, G. (2024). Penerapan Teknologi Blockchain dalam Meningkatkan Keamanan Sistem Identifikasi Pengguna. *Journal Software, Hardware and Information Technology*, *4*(2), Article 2. https://doi.org/10.24252/shift.v4i2.142

Almasoud, A. S., Hussain, F. K., & Hussain, O. K. (2020). Smart contracts for blockchain-based reputation systems: A systematic literature review. *Journal of Network and Computer Applications*, *170*, 102814. https://doi.org/10.1016/j.jnca.2020.102814

Apriani, D., Azizah, N. N., Ramadhona, N., & Kusumawardhani, D. A. R. (2023). Optimasi Transparansi Data dalam Rantai Pasokan melalui Integrasi Teknologi Blockchain. *Jurnal MENTARI: Manajemen, Pendidikan Dan Teknologi Informasi*, *2*(1), Article 1. https://doi.org/10.33050/mentari.v2i1.326

Arwin, M., Aulia, D., & Uzliawati, L. (2023). Implementasi Blockchain Dalam Bidang Akuntansi dan Supply Chain Management: Studi Literatur. *Progress: Jurnal Pendidikan, Akuntansi Dan Keuangan*, *6*(2), Article 2. https://doi.org/10.47080/progress.v6i2.2616

Astiti, N. P. Y., Prayoga, I. M. S., & Imbayani, I. G. A. (2023). TECHNOLOGY READINESS INDEX DALAM PENGADOPSIAN SISTEM PEMBAYARAN QRISS. *Warmadewa Management and Business Journal (WMBJ)*, *5*(1), 51–57. https://doi.org/10.22225/wmbj.5.1.2023.51-57

Badan Pusat Statistik, I. (n.d.). *Produksi Padi Tahun 2021 Turun 0,43 persen (Angka Tetap)*. Retrieved March 16, 2025, from https://www.bps.go.id/id/pressrelease/2022/03/01/1909/produksi-padi-tahun-2021-turun-0-43-persen--angka-tetap-.html

Behnke, K., & Janssen, M. F. W. H. A. (2020). Boundary conditions for traceability in food supply chains using blockchain technology. *International Journal of Information Management*, *52*, 101969. https://doi.org/10.1016/j.ijinfomgt.2019.05.025

Bodkhe, U., Tanwar, S., Parekh, K., Khanpara, P., Tyagi, S., Kumar, N., & Alazab, M. (2020). Blockchain for Industry 4.0: A Comprehensive Review. *IEEE Access*, *8*, 79764–79800. IEEE Access. https://doi.org/10.1109/ACCESS.2020.2988579

Burcharth, A., Knudsen, M. P., & Søndergaard, H. A. (2017). The role of employee autonomy for open innovation performance. *Business Process Management Journal*, *23*(6), 1245–1269. https://doi.org/10.1108/BPMJ-10-2016-0209

Christine, D., & Apriwandi, A. (2022). Audit Internal dan Pencegahan Kecurangan- Bukti Empiris Pada Perusahaan Umum Badan Urusan Logistik (BULOG). *Owner : Riset Dan Jurnal Akuntansi*, *6*(3), Article 3. https://doi.org/10.33395/owner.v6i3.1046

Deni, A. (2023). *Manajemen Strategi di Era Industri 4.0*. Cendikia Mulia Mandiri.

Dietrich, F., Hoffmann, M., Mediavilla, M. A., Louw, L., & Palm, D. (2022). Towards a model for holistic mapping of supply chains by means of tracking and tracing technologies. *Procedia CIRP*, *107*, 53–58. https://doi.org/10.1016/j.procir.2022.04.009

Dutta, P., Choi, T.-M., Somani, S., & Butala, R. (2020). Blockchain technology in supply chain operations: Applications, challenges and research opportunities. *Transportation Research Part E: Logistics and Transportation Review*, *142*, 102067. https://doi.org/10.1016/j.tre.2020.102067

Handayani, K. (2024). Strategi Adaptif untuk Mempertahankan Tenaga Kerja di Era Society 5.0: Menghadapi Tantangan Cobot. *Jurnal Penelitian Multidisiplin Bangsa*, *1*(3), Article 3. https://doi.org/10.59837/jpnmb.v1i3.50

Hasanah, L. (2022). Analisis Faktor-Faktor Pengaruh Terjadinya Impor Beras di Indonesia Setelah Swasembada Pangan. *GROWTH : Jurnal Ilmiah Ekonomi Pembangunan*, *4*(2), Article 2.

Hidayati, D., & Saputra, W. A. (2020). Implementation of Online Learning during the Covid-19 Epidemic in Indonesia: Assessment of Higher Education Students' Use and Implementation of Online Learning Technology. *Universal Journal of Educational Research*, *8*(10), 4514–4519. https://doi.org/10.13189/ujer.2020.081019

Lase, S. M. N., Adinda, A., & Yuliantika, R. D. (2021). Kerangka Hukum Teknologi Blockchain berdasarkan Hukum Siber di Indonesia. *Padjadjaran Law Review*, *9*(1). https://jurnal.fh.unpad.ac.id/index.php/plr/article/view/500

Laurensius et al., m.sI, d. s., s. e., c.pS, n. s., s. pD ,. m. pD ,. m. m., m.m, d. n. n., s. e., m.m, g. n., s. t. p., m.mpAR, d. s., mpD, m.t, m. a. p. n., s. sI t., m.sI, d. m., s. t., m.t, a. s., s. t., m.si, d. r. n., s. sI, & m.β.α, h. d., s. s. t. (2024). *MANAJEMEN LOGISTIK*. Cendikia Mulia Mandiri.

Lin, X., Chang, S.-C., Chou, T.-H., Chen, S.-C., & Ruangkanjanases, A. (2021). Consumers' Intention to Adopt Blockchain Food Traceability Technology towards Organic Food Products. *International Journal of Environmental Research and Public Health*, *18*(3), Article 3. https://doi.org/10.3390/ijerph18030912

Mahyuni et al. (2024). (PDF) Mapping the potentials of blockchain in improving supply chain performance. *Cogent Business and Management*, *7*(1). https://www.researchgate.net/publication/343218260_Mapping_the_potentials_of_blockchain_in_improving_supply_chain_performance

Mladenova, I. (2022). Relation between Organizational Capacity for Change and Readiness for Change. *Administrative Sciences*, *12*(4), Article 4. https://doi.org/10.3390/admsci12040135

Nurhaswinda, N., Zulkifli, A., Gusniati, J., Zulefni, M. S., Afendi, R. A., Asni, W., & Fitriani, Y. (2025). Tutorial uji normalitas dan uji homogenitas dengan menggunakan aplikasi SPSS. *Jurnal Cahaya Nusantara*, *1*(2), Article 2.

Oktadini, N. R., Fernando, J., Sevtiyuni, P. E., Buchari, M. A., Putra, P., & Meiriza, A. (2022). Measuring Technology Readiness Index (TRI) of Management Information System Adoption in Higher Education. *Ultima InfoSys : Jurnal Ilmu Sistem Informasi*, *13*(2), Article 2. https://doi.org/10.31937/si.v13i2.2916

Paramita. (2023). (PDF) Pemanfaatan Blockchain dalam perusahaan logistic. *Universitas Muhammadiyah Surabaya*. https://www.researchgate.net/publication/370821678_Pemanfaatan_Blockchain_dalam_perusahaan_logistic

Parasuraman, A. (2000). Technology Readiness Index (Tri): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies. *Journal of Service Research*, *2*(4), 307–320. https://doi.org/10.1177/109467050024001

Parasuraman and Colby. (2015). An Updated and Streamlined Technology Readiness Index—A. Parasuraman, Charles L. Colby, 2015. *Journal of Service Research*, *18*(1), 59–74.

Pires, P., Filho, B. da C., & Junior, R. M. (2023). Technology Readiness Index: A study applied to students. *ISLA 2023 Proceedings*. https://aisel.aisnet.org/isla2023/16

Qadrya, H. A. (2018). Faktor-Faktor Yang Mempengaruhi Kesiapan Penerapan Sistem Single Sign-On Di Uin Syarif Hidayatullah Jakarta. *UIN Syarif Hidayatullah Jakarta*.

Rachmaniah, M., Ardi, P., & Prakasa, M. I. (2022). Sistem Pencatatan Transaksi Distribusi Cabai Menggunakan Extreme Programming dan Teknologi Blockchain. *JUSTIN (Jurnal Sistem dan Teknologi Informasi)*, *10*(2), Article 2. https://doi.org/10.26418/justin.v10i2.46663

Rahardja, U., Aini, Q., Yusup, M., & Edliyanti, A. (2020). Penerapan Teknologi Blockchain Sebagai Media Pengamanan Proses Transaksi E-Commerce. *CESS (Journal of Computer Engineering, System and Science)*, *5*(1), Article 1. https://doi.org/10.24114/cess.v5i1.14893

Rahmadi, I. H., & Mutasowifin, A. (2021). Pengaruh Intellectual Capital Terhadap Kinerja Keuangan dan Nilai Perusahaan (Studi Kasus Perusahaan Sektor Keuangan yang Terdaftar di Bursa Efek Indonesia Tahun 2017-2019). *INOBIS: Jurnal Inovasi Bisnis Dan Manajemen Indonesia*, *4*(2), Article 2. https://doi.org/10.31842/jurnalinobis.v4i2.183

Raza, E., Sabaruddin, L. O., & Komala, A. L. (2020). Manfaat dan Dampak Digitalisasi Logistik di Era Industri 4.0. *Jurnal Logistik Indonesia*, *4*(1), 49–63. https://doi.org/10.31334/logistik.v4i1.873

Shan, Z., & Wang, Y. (2024). Strategic Talent Development in the Knowledge Economy: A Comparative Analysis of Global Practices. *Journal of the Knowledge Economy*, *15*(4), 19570–19596. https://doi.org/10.1007/s13132-024-01933-w

Stone, D. L., Deadrick, D. L., Lukaszewski, K. M., & Johnson, R. (2015). The influence of technology on the future of human resource management. *Human Resource Management Review*, *25*(2), 216–231. https://doi.org/10.1016/j.hrmr.2015.01.002

Subramanian, N., Chaudhuri, A., & Kayikci, Y. (2020). Blockchain Applications in Food Supply Chain. In N. Subramanian, A. Chaudhuri, & Y. Kayıkcı (Eds.), *Blockchain and Supply Chain Logistics: Evolutionary Case Studies* (pp. 21–29). Springer International Publishing. https://doi.org/10.1007/978-3-030-47531-4_3

Subramanian, N., Chaudhuri, A., & Kayıkcı, Y. (2020). Information System Evolution and Blockchain. In N. Subramanian, A. Chaudhuri, & Y. Kayıkcı (Eds.), *Blockchain and Supply Chain Logistics: Evolutionary Case Studies* (pp. 1–9). Springer International Publishing. https://doi.org/10.1007/978-3-030-47531-4_1

Syahrul Ansari, T. (2019). State, BUMN (State Owned Enterprises - SOEs) and Role of Law in Economic Development: A Theoretical Approach. *Britain International of Humanities and Social Sciences (BIoHS) Journal*, *1*(2), 20–29. https://doi.org/10.33258/biohs.v1i2.32

Tennis, V. Y., Dekrita, Y. A., & Diliana, S. M. (2023). Analisis Sistem Pengendalian Internal Persediaan Barang Dagang Pada Perum Bulog Sub Divisi Regional Wil IV Maumere. *GEMILANG: Jurnal Manajemen Dan Akuntansi*, *3*(4), Article 4. https://doi.org/10.56910/gemilang.v3i4.884

Wahyu and Pinardi. (2024). (PDF) Penilaian Tingkat Kematangan Model Bisnis Dan Teknologi Informasi Mengunakan Metode Bussiness Process Oriented Maturity Model. *ResearchGate*, *11*(3), 349–356. https://doi.org/10.32736/sisfokom.v11i3.1481

Wibisono. (2024). (PDF) UNDERSTANDING ATTITUDE TOWARDS CHANGE. *PENERBIT FUTURE SCIENCE*, 1–177.

Xu, J., Guo, S., Xie, D., & Yan, Y. (2020). Blockchain: A new safeguard for agri-foods. *Artificial Intelligence in Agriculture*, *4*, 153–161. https://doi.org/10.1016/j.aiia.2020.08.002

Yang, H., Song, H., Cheung, C., & Guan, J. (2021). How to enhance hotel guests' acceptance and experience of smart hotel technology: An examination of visiting intentions. *International Journal of Hospitality Management*, *97*, 103000. https://doi.org/10.1016/j.ijhm.2021.103000

Zai, I., Yulianti, Y., Feblicia, S., Aqmi, A. L. Z., & Rahmah, A. F. (2022). Analisis Pengaruh Peningkatan Kinerja, Incoterms, Transportasi, Distribusi, Keterlibatan TPL dan Manajemen Risiko Terhadap Aktivitas Logistik. *Jurnal Sosial Teknologi*, *2*(3), 225–238. https://doi.org/10.59188/jurnalsostech.v2i3.304.