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The Enforcement of Service Level Agreement on E-Payment Fund Transfer in Malaysian Government: An Application of Technological-Organizational-Environmental (TOE) Framework

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Abstract

Purpose: This study aims to investigate discrepancies in e-payment collection processes related to Service Level Agreements (SLAs) and explore the feasibility of using Blockchain Technology and Smart Contracts (BCT-SCs) to enhance SLA monitoring and penalty enforcement on e-payment collection at the Malaysian Government Agency.
Design/Methodology/Approach: An in-depth qualitative case study approach will be employed, utilizing the Technological-Organizational-Environmental (TOE) framework to guide the investigation.
Findings: Recent data from Bank Negara Malaysia (BNM) indicates a significant increase in e-payment transactions, reflecting a growing reliance on digital financial services among Malaysian consumers. However, discrepancies in SLA adherence, as highlighted by the Auditor General of Malaysia in 2022, pose challenges to the efficiency and effectiveness of e-payment systems. The study identifies the potential of BCT-SCs to improve SLA management, offering features such as decentralization, immutability, and real-time processing to enhance speed, security, and transparency.
Research Limitations/Implications: The study is limited by its focus on a single case study at the Malaysian Government Agency. Generalizing findings to other contexts may require caution.
Practical Implications: This research offers valuable insights for policymakers, practitioners, and industry stakeholders, providing guidance for the adoption of BCT-SCs to optimize e-payment collection processes. By addressing SLA management gaps and promoting accountability, the study aims to enhance the efficiency and effectiveness of the e-payment ecosystem.
Originality/Value: This study contributes to the existing literature by examining the application of BCT-SCs in enhancing SLA monitoring and penalty enforcement in e-payment collection processes. The research provides a comprehensive analysis of the challenges and opportunities associated with SLA management in the context of digital financial services, offering practical solutions to improve accountability and optimize e-payment systems.

Keywords: e-payment, service level agreement, blockchain technology, smart contract, TOE Framework

Introduction

Digital transformation has boosted the financial sector's growth in electronic services (e-services). The digitization of conventional payment systems has improved efficiency and flexibility, reduced costs, and improved people's and businesses' access to financial (Muchandigona & Kalema, 2023). As a developing nation, Malaysia is putting tremendous efforts into modernizing its traditional payment infrastructure and creating a robust electronic payment (e-payment) ecosystem. The COVID-19 pandemic has expedited the movement towards a cashless society in Malaysia (Ong et al., 2023). As a result, there has been a formidable increment in digital transformation initiatives from public and private organizations. In 2021, the Malaysian government launched the MYDigital initiative, which aimed to promote the use of cashless payment options across all ministries and government agencies.

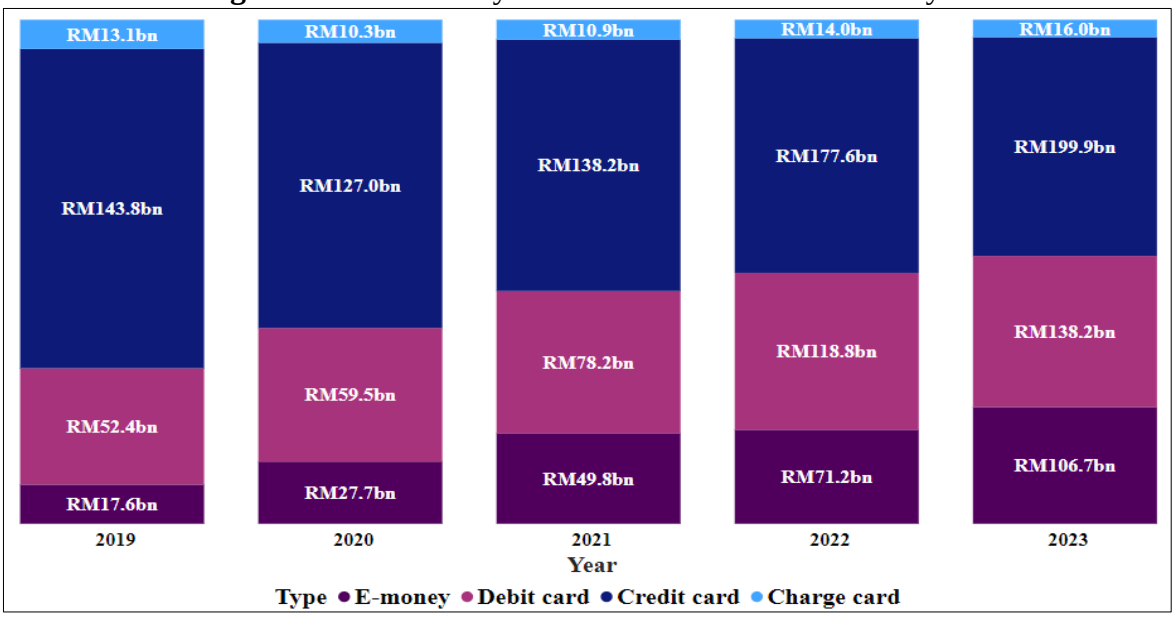
Recently, technology advancements have significantly transformed various business landscapes. The evolution of Internet technology has played a pivotal role in facilitating knowledge dissemination and economic transactions (Alves et al., 2023). According to the World Economic Forum, in 2018, the widespread adoption of technology, digitization, evolving consumer preferences, and regulatory shifts have accelerated the uptake and utilization of e-payments (World Economic Forum, 2018). E-payment is defined as a tool that allows for electronic fund transfers from a payer to a payee through diverse electronic payment mechanisms. It enables customers to manage their transactions and accounts via web-based applications (Abdulla et al., 2015).

The e-payment trends in Malaysia

Based on the Bank Negara Malaysia (

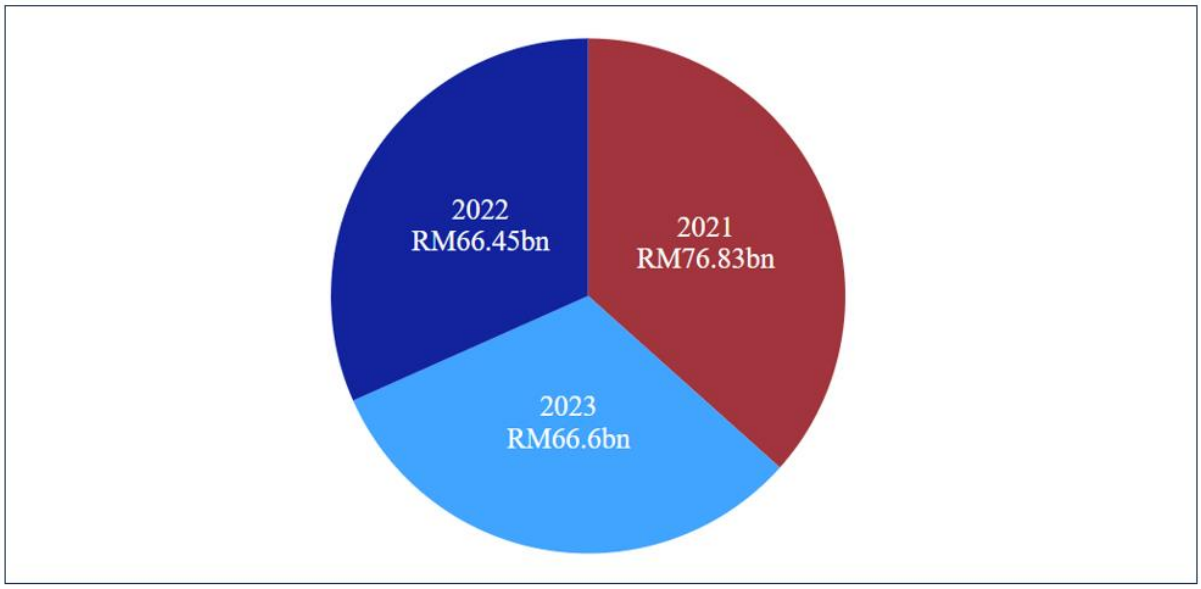
Figure *1*), there has been substantial growth in cashless adoption among Malaysians. In 2023, there were RM293 billion transactions were executed using cashless platforms (e.g. credit card, debit card, charge card and e-money). In the public sector, Malaysia's federal agencies show significant collection via e-payment platforms with more than RM60 billion collection was from the e-payment platform (**Figure 2**). Nevertheless, a comprehensive evaluation is crucial to establishing an efficient e-payment system, ensuring its capability to facilitate transactions for the broader population and optimizing front to backend operations (Mohamad et al., 2022 and Ong et al., 2023).

Figure 1 : Cashless Payment Instruments trends in Malaysia



Source: BNM (2023)

Figure 2 : E-payment collection from year 2021 – 2023



Source: AGD (2023)

Despite the ease and convenience of e-payment, there are complex interactions among various parties and entities such as payors, merchants, banks, payment gateway providers, and others, are involved in both front-end and back-end processing (Mohamad et al., 2022 ; Victor Chukwunweike et al., 2023). Hence, a written contractual agreement, known as service level agreement (SLA), is established between parties to outline their roles in the e-payment process (Alzubaidi et al., 2023; Hang & Kim, 2019). SLA is a formal contract between a service provider and a customer. It can be defines as the specific services to be provided, the quality standards that must be met, and the metrics that will be used to measure performance (Hang & Kim, 2019; Uriarte et al., 2021). It also includes provisions for remedies or penalties if the agreed-upon service levels are unmet. SLAs are commonly used in industries such as technology, telecommunications, and outsourcing, where clear expectations and accountability for service delivery are crucial (Hang & Kim, 2019; Javed & Mangues-Bafalluy, 2022; K. Upadhyay et al., 2021; Uriarte et al., 2021). However, previous studies have found that the execution of SLAs is still manually handled, which leads to insufficient results due to a lack of transparency and automation (Javed & Mangues-Bafalluy, 2022; Rachad et al., 2022).

According to Accountant General Department Circular No. 3 2019, the government agency is required to ensure that the acquiring bank (AB) transfers funds from the Small Treasury Receipt Account (ATKP) to the Main Revenue Account (ATUPP) for e-payment collection within one working day after the transaction day. If the AB fails to comply with the service level agreement (SLA) specified in the agreement, the government agency shall impose penalties. Executing the terms in the SLA is vital for government agencies in Malaysia. This ensures the efficiency of public service delivery. According to Treasury Circular PK 4.2, the government agency must enforce the SLA terms upon suppliers or vendors who fail to deliver the promised services. Monitoring and enforcing SLAs can be challenging, especially in complex and labour-intensive processes, such as the widespread implementation of e-payment systems. The risk of oversight and inaccuracies is significant due to difficulties accessing information and the manual nature of monitoring (Khelifi et al., 2023; Yong et al., 2022). Khelifi et al. (2023) emphasize the importance of addressing ethical considerations related to verifying the credentials of accounting practitioners, as these concerns can harm the reputation of accounting and auditing bodies. Key issues highlighted include lengthy verification procedures, inadequate adherence to international standards, lack of formal engagement, and the vulnerability to falsification resulting from manual and conventional monitoring techniques.

Similarly, Yong et al. (2022) argue that traditional lease agreements often involve extensive paperwork, which is time-consuming and prone to errors or document misplacement. They also note the inconvenience of requiring landlords and tenants to sign agreements, especially when they are geographically distant physically. Furthermore, manual procedures for rent collection and security deposit management can lead to disputes and require high trust between parties. Resolving disputes, such as delayed rent payments, can be laborious and may require legal intervention. Additionally, traditional agreements may lack flexibility and adaptability to changes, often necessitating the drafting and signing new agreements for any modifications.

Problem statement

According to the Auditor General's report, government agencies sometimes failed to execute the SLAs and this led to interruptions in service delivery. This issue is also apparent in the context of e-payment collection in the Federal Government of Malaysia (FGOM). In 2022, the Auditor General report the failure of Acquiring Bank (AB) to meet the SLA (Auditor General Report, 2022). The report highlights RM34.0 million revenue collection from e-payment platform failed to transfer to the government revenue account within a time. Consequently, the government agency faced delay in revenue recognition and at the same time the government agency also failed to charge the penalty to the AB as per SLA. This issue is derived from manual and traditional approach on the SLA monitoring and execution. In the minutes of the discussion held on March 7, 2024, at one of the FGOM agencies, the following statement was made:

> "*The officer agrees with the current issues in the monitoring and enforcement section of the SLA transfer from AB. Currently, the penalty calculation process is done manually and requires further discussions with AB, despite being documented. They acknowledge that the manual penalty calculation process may be prone to errors and delays* - (Discussion Notes, 2024)."

Hence, there is a need to accelerate the process by integrating new technologies such as blockchain and smart contracts (BCT-SC). Khan et al. (2022) advocate for automation to periodically verify SLA terms transparently, reducing inaccuracies and delays associated with manual processes. Meanwhile, Upadhyay et al. (2021) emphasize implementing effective SLA monitoring and enforcement mechanisms to ensure compliance and trust between service providers and consumers. Additionally, Javed and Mangues-Bafalluy (2022) underscore the importance of inter-provider SLA agreements for coordinating network slices across multiple administrative domains, which is critical for maintaining secure processes in dynamic environments. Nguyen et al. (2023) has proposed technological advancements like BCT-SC in simplify SLA management. However, Kaya (2021) suggests that although BCT-SCs could automate the request and implementation of SLA terms. Nevertheless, the adoption of this technology is still in its early stages (Gorbunova et al., 2022; Ramachandran et al., 2023; Zhou and Liu, 2022) necessitating a thorough assessment from an organizational perspective.

Therefore, this study aims to investigate the root cause of why discrepancy happen on SLA management and explore the feasibility of implementing BCT-SC to enhance the monitoring and execution of SLA by AB for fund transfers from ATKP to ATUPP for e-payment collection in Malaysian government agencies. This study will employ the Technology-Organization-Environment (TOE) framework.

Research Methodology

The research methodology employed in this study will be based on a qualitative case study approach, following the principles outlined by Yin (2018). The focus of this study will be to investigate discrepancies in e-payment collection processes related to SLAs within a Malaysian Government Agency. To guide the investigation, the TOE framework will be utilized in a systematic manner. Data collection will involve conducting semi-structured interviews with key stakeholders, including government officials, IT personnel, and service providers, in order to gain comprehensive insights into the current e-payment collection processes and the challenges associated with them. Additionally, document analysis will be undertaken to review existing SLAs and e-payment transaction records. The study will also explore the potential application of BCT-SCs to improve SLA monitoring and penalty enforcement. Thematic analysis will be employed to analyze the collected data, identifying key themes and patterns that will help draw meaningful conclusions and make recommendations for enhancing e-payment collection processes.

Literature Review

E-payment plays a crucial role in the digital economy by providing individuals and businesses with a convenient and secure platform for online transactions (Al-Khasawneh, 2023). According to Erazo et al. (2023), e-payment has revolutionized transactional practices by offering speed, convenience, and security. It enables individuals and businesses to streamline financial operations and reduce reliance on physical currency through effortless purchases and fund transfers (Azih and Nwagwu, 2015). The adoption of e-payment by organizations aims to enhance efficiency, transparency, and security (Erazo et al., 2023 ; Taherdoost and Madanchian, 2023), enabling customers to conduct transactions remotely without being physically present (Nor Asiah et al., 2023).

The significance of e-payment

Sing and Nasuredin (2023) define e-payment as electronic communication-enabled financial transactions, which are pivotal in fintech for promoting financial inclusion and economic development (Victor Chukwunweike et al., 2023). On the other hand, Abdulla et al. (2015) highlight the potential of e-payment to boost transactional efficiency and convenience, especially in the remote areas, facilitating ease of doing business. Mohamad et al. (2022) emphasize the benefits of e-payment by integrating diverse electronic networks and technologies to drive cost reduction and reliability and facilitate e-commerce.

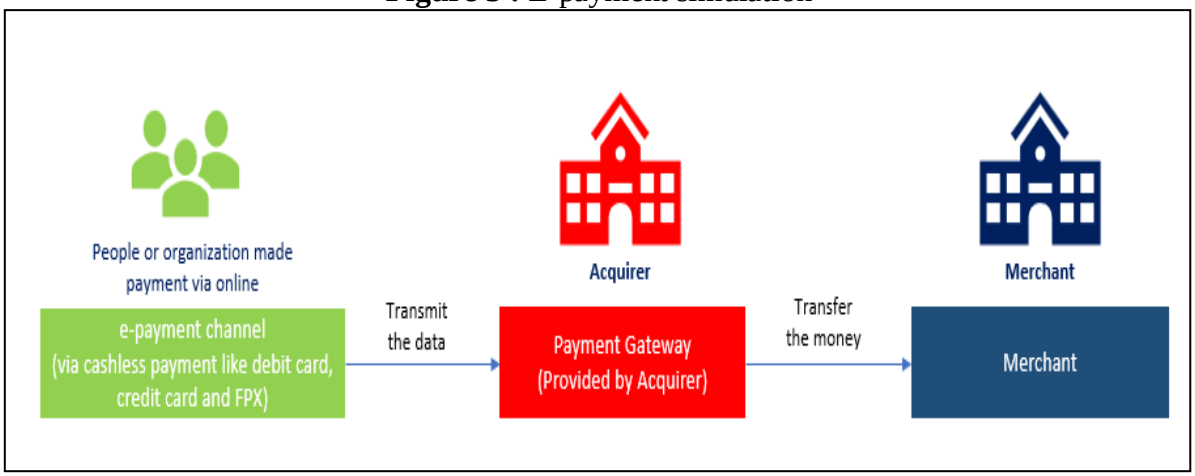
Nor Asiah et al. (2023) expand on the objectives of e-payment through e-wallet platforms, emphasizing the transition towards cashless societies. Pueblos and Emilio (2023) advocate for e-payment platforms to enhance secure transactions and micro-entrepreneurial processes. Victor Chukwunweike et al. (2023) underscores the importance of e-payment adoption in improving banking efficiency and customer satisfaction. Khiaonarong et al. (2021) stress the significance of e-payment in bolstering operational resilience and introducing non-paper-based instruments that align with user expectations for speed and availability. Meanwhile, Azih & Nwagwu (2015) view e-payment as a vehicle for secure and transparent transactions, particularly in public sectors aiming to curb delays and corruption.

Brosnan et al. (2023) characterizes e-payments as a spectrum of digital transformation that modernizes finance, potentially enhancing convenience, efficiency, and financial inclusion. Similarly, Satar et al. (2023) suggest that e-payment systems are implicit tools that enhance the capabilities and performance of the e-commerce industry. Furthermore, e-payment systems can provide valuable insights to organizations by modernizing financial processes, improving transparency, and enhancing operational efficiency, ultimately fostering better service delivery and public trust.

The e-payment process

Fundamentally, the e-payment ecosystem involves interactions among multiple entities (Victor Chukwunweike et al., 2023). **Figure 3** depicts the e-payment simulation. The e-payment process starts once the customer initiates the transaction online via the platform provided by the merchants. Then, when the transaction is successful, the interaction at the backend will start via the gateway provided by the acquirer. The acquirer (typically a bank) will act as an intermediary to communicate with the issuer, receive the money, and transfer the money to the merchant according to the agreement.

Figure 3 : E-payment simulation



Source: Authors

Nevertheless, the communication and execution between acquirers and merchants, such as transfers, refunds, and others, need to be strengthened. Based on the Bank Negara Malaysia (2021) guideline, the acquirers must ensure timely and proper payment processing for merchants to mitigate settlement risk. Settlement risk defined as the risk of failing to transfer funds from transactions at the agreed-upon time. Prolonged settlement delays pose significant financial risks for businesses, including cash flow challenges, missed growth opportunities, and increased exposure to exchange rate fluctuations and fraud (Bank Negara Malaysia, 2021; Bergh & John, 1993; Checkout.com, 2023). These delays can hinder businesses' ability to meet financial obligations, seize growth prospects (Allsopp et al., 2009; Dai & Vasarhelyi, 2017)

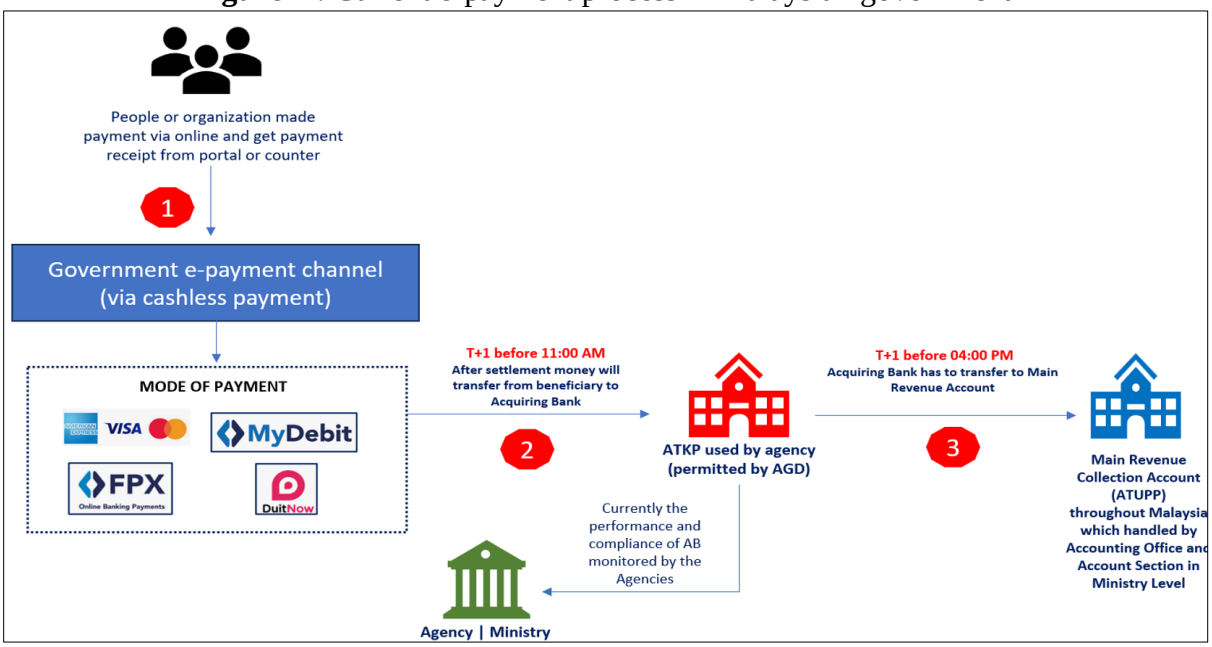
The benefits and advantages gained from e-payment implementation depend on the efficiency of front-to-back-end operations. Although e-payment offers numerous benefits, several issues at the backend operations like SLA execution among stakeholders, have been overlooked. According to Mohamad et al. (2022) and Ong et al. (2023) the organisation needs to ensure the e-payment process is efficient to facilitate transactions for the general public and streamline subsequent backend operations comprised of customers, merchants, and other stakeholders such as banks and payment gateway providers.

The e-payment process in Malaysian Government Agencies

The e-payment process begins when customers, including people, business entities, and non-business entities, pay through cashless channels to government agencies. **Figure 4** show the payment channel and payment mode offered by e-payment service in Malaysia government agency. This includes transferring funds to the ATKP before 11:00 am (T+1) in working days. Next, the AB is responsible for sending the total gross amount collected in the ATKP to the ATUPP by 4:00 pm (T+1) in working days. The acquirer must adhere to the SLA that clearly stated in the standard agreement. Based on the standard agreement, the acquirer must remit the collected money from e-payment to the government revenue account one day after the

transaction. If the acquirer fails to meet the SLA, the government can penalize the acquirer based on the condition stipulated in the agreement.

Figure 4 : Current e-payment process in Malaysian government

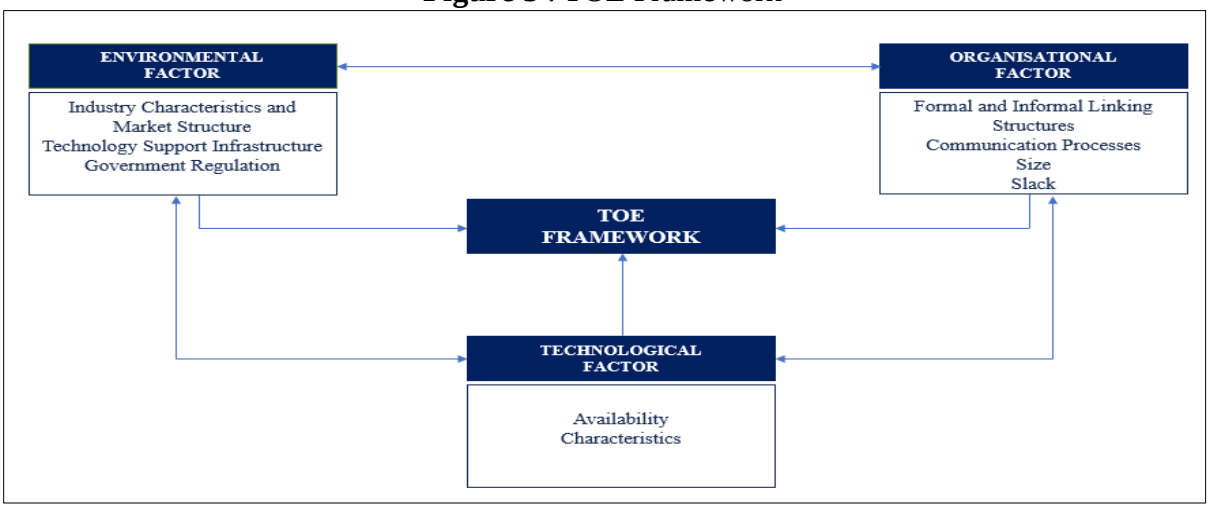


Source: Authors

Technological-Organisational-Environmental framework

Tornatzky & Fleischer (1990) introduced the Technological-Organizational-Environmental (TOE) framework as a comprehensive model for understanding how firms adopt technological innovations. This framework comprises three essential dimensions: the technological context, organizational context, and environmental context. Together, these dimensions influence the decisions made by organizations when adopting new technological innovations. Numerous studies have recognized the TOE framework as a multifaceted model that provides a solid foundation for analysing the factors influencing technology adoption in different organizational contexts (Akter, 2022; Alshamsi et al., 2022; Kajla et al., 2023; Kumar et al., 2023; Yadlapalli et al., 2022). However, it is worth noting that the specific factors within these three dimensions may differ across studies and technologies (Akter, 2022).

Figure 5 : TOE Framework



Source: Tornatzky & Fleischer (1990)

Figure 5 illustrate the TOE framework proposed by (Tornatzky & Fleischer, 1990). Tornatzky & Fleischer (1990) categorized technologies into two types within the technological context: internal technologies, currently used by the organization, and external technologies, available but not yet adopted. Akter (2022) explained that the adoption decision in the technological dimension is based on analysing the benefits of the technology for the organization, including its relative advantage (Dai & Vasarhelyi, 2017; Kajla et al., 2023; Rijanto, 2021; Upadhyay et al., 2021).

Organizational factors, such as characteristics and resources, significantly influence an organization's readiness for innovation (Clohessy & Acton, 2019; Tornatzky & Fleischer, 1990; Upadhyay et al., 2021). These factors include formal and informal organizational structures, such as size, centralization, formalization, and management complexity (Dai & Vasarhelyi, 2017; Kajla et al., 2023; Rijanto, 2021; Tornatzky & Fleischer, 1990). The availability and effective management of resources, such as capital readiness, cost, expertise, and personnel, play pivotal roles in the decision-making process for adopting innovation (Akter, 2022; Malladhi, 2023; Perera & Abeygunasekera, 2022). Additionally, an organization's responsiveness (Akter, 2022; Clohessy & Acton, 2019) and support from top management (Kajla et al., 2023; Odunlami & Samuel, 2023) significantly influence technology adoption decisions. Effective communication channels within and between the organization and its external environment are also crucial (Akter, 2022).

In the environmental context, which includes the industry landscape, competitors, government interactions, and regulatory framework (Dai & Vasarhelyi, 2017; Kajla et al., 2023; Tornatzky & Fleischer, 1990), the opportunities and threats presented by the environment significantly influence an organization's decisions on adopting technology (Odunlami & Samuel, 2023; Saif et al., 2022). For instance, increased competition within an industry may pressure organizations to adopt alternative technologies in order to gain or maintain a competitive advantage (Akter, 2022; Seshadrinathan & Chandra, 2021).

Discussion

Service Level Agreements (SLAs) play a crucial role in delivering various IT services such as cloud computing, software-as-a-service (SaaS) provision, and Internet of Things (IoT), serving as contractual agreements between service providers and consumers delineating service quality and repercussions for non-compliance (Nguyen et al., 2023). Alzubaidi et al. (2023) underscores the significance of SLAs in fostering trust by defining quality requirements and specifying consequences for breaches. Similarly, Upadhyay et al. (2021) stress the legal nature of SLAs, binding vendors to deliver specified services in return for payment, with penalties for deviations.

However, SLA management poses challenges, particularly in manual monitoring, compliance assessment, and penalty enforcement (Rachad et al., 2022; Scheid et al., 2019). Javed and Mangues-Bafalluy (2022) and Khan et al. (2022) advocate for automated mechanisms to mitigate delays and inaccuracies linked to manual processes, enhancing transparency and credibility. Dagiliene and Šutiene (2019) warn of the potential for incomplete reporting due to data silos and the lack of standardized procedures, underscoring the need for automated solutions. Additionally, Kapsoulis et al. (2021) argue that robust supervision and compensation mechanisms are vital for enforcing SLAs and fostering trust between cloud providers and adopters.

Similarly, Kaya (2021) highlights the reliance on trust-based structures for SLA enforcement, resulting in cumbersome processes for customers seeking compensation. Moreover, Scheid et al.(2018) emphasize the manual effort and interaction involved in SLA specification and compensation, which can impede service agility and reliability. In the realm of cloud computing, Zhou et al. (2018) stress the challenge of ensuring SLA enforcement due to the absence of a reliable platform, underlining the importance of SLAs in maintaining service

quality and ensuring customer satisfaction, especially during the migration of time-critical applications.

The concept of Smart contracts (SCs) was originally proposed by Nick Szabo in 1997. These contracts have completely transformed the way contracts are executed by automating processes and decreasing the need for intermediaries (Szabo, 1997). SCs encode the terms and conditions of a contract into self-executing code, resulting in improved security and efficiency when compared to traditional paper-based contracts (Ahmadisheykhsarmast and Sonmez, 2020). Even though SCs offer numerous benefits, such as real-time updates and reduced transaction costs, their application in SLAs requires careful examination. In SLAs, SCs promise to automate enforcement and ensure strict adherence to agreed-upon standards (Nguyen et al., 2023). However, significant challenges like security vulnerabilities and legal implications must be considered (Ranjan et al., 2023; Rozario and Vasarhelyi, 2018). Thus, the integration with BCT will enhance transparency and accountability and raise concerns about the irrevocability of encoded terms. If disputes arise, mechanisms for amendment or resolution may be limited, potentially resulting in prolonged legal battles or dissatisfaction among involved parties.

Moreover, the reliance on code execution for contract enforcement introduces complexities in interpretation and application. While traditional contracts often involve negotiation and human judgment in resolving disputes, SCs operate based on predefined algorithms and binary logic (Ahmadisheykhsarmast and Sonmez, 2020). This rigid framework may not adequately account for nuanced circumstances or unforeseen contingencies, potentially leading to unintended consequences or unfair outcomes. Furthermore, integrating smart contracts in SLAs requires careful consideration of data privacy and security concerns. As sensitive performance data is increasingly digitised and stored on blockchain networks, the risk of unauthorised access or exploitation becomes critical (Rozario and Vasarhelyi, 2018). Additionally, the complexity of regulatory compliance in various jurisdictions adds another layer of complexity, necessitating thorough auditing and adaptation of smart contract protocols to ensure alignment with legal frameworks.

Several studies have examined the technological factors influencing the adoption of BCT in different fields. In a study on the accounting domain, Akter (2022) found that efficiency, transparency, and real-time processing are critical drivers for adopting BCT. While, Upadhyay et al. (2021) focused on the UK automotive industry and identified data security, privacy, scalability, interoperability, efficiency, and real-time processing as crucial for BCT adoption. Similarly, Clohessy & Acton (2019) explored organizational factors that influence BCT adoption in Irish companies and identified complexity, technical knowledge, technology readiness, and infrastructure as influential. Dai & Vasarhelyi (2017) proposed a new measurement and assurance paradigm for the accounting and auditing profession, emphasizing the importance of architecture, compatibility, data security, and collaboration in BCT adoption.

In the banking sector, Kajla et al. (2023) and Odunlami & Samuel (2023) identified compatibility, efficiency, scalability, data security, decentralization, and integration with legacy systems as critical for BCT adoption. Perera & Abeygunasekera (2022) studied the lack of BCT adoption in accounting and auditing in Sri Lanka, focusing on interoperability, efficiency, and real-time processing. Rijanto (2021) investigated BCT adoption in the agricultural industry and identified relative advantage, interoperability, collaboration, and transparency as crucial factors. Seshadrinathan & Chandra (2021) developed an adoption model for BCT in accounting applications, emphasizing data security, efficiency, real-time processing, relative advantage, and technology readiness.

Furthermore, Malladhi (2023) compared the implementation of AI-OCR technology in Vendor Invoice Management Systems within SAP and Oracle systems, highlighting efficiency, error reduction, collaboration, scalability, and data security as critical aspects in transforming accounting information systems and providing insights into the broader technological landscape in which BCT adoption occurs. Overall, efficiency, transparency, data security,

scalability, interoperability, and collaboration consistently emerge as critical determinants of BCT adoption across various fields. Understanding these factors is essential for organizations seeking to integrate BCT into their operations (Saadan et al., 2024).

Organizational factors are crucial in successfully adopting BCT across various industries. Akter (2022) emphasizes the importance of organizational readiness, including blockchain knowledge, education, training, and top management support, in successfully adopting Blockchain Technology (BCT) in accounting. Similarly, Upadhyay et al. (2021) highlight the importance of organizational challenges such as business model readiness, resource allocation, and top management support for BCT adoption in the UK automotive industry. Clohessy & Acton (2019) underscore the significance of organizational factors like innovativeness, business model readiness, and overcoming resistance to change for successful BCT adoption in Irish companies.

Dai & Vasarhelyi (2017) propose a new measurement and assurance paradigm for the accounting and auditing profession, emphasizing the importance of organizational factors such as business model readiness, compatibility, and cost management for successful BCT integration. In the banking sector, Kajla et al. (2023) identify organizational challenges such as developing a new business model, managing costs, and securing top management support as crucial for BCT adoption. Similarly, Odunlami & Samuel (2023) highlight the importance of organizational factors like blockchain knowledge, top management support, and cost management for successful BCT adoption in the financial services industry.

Perera & Abeygunasekera (2022) emphasize the need for blockchain knowledge, top management support, and investment in new competencies to drive successful BCT adoption in accounting and auditing in Sri Lanka. Rijanto (2021) finds that organizational factors such as blockchain knowledge, organizational size, and collaboration are critical for successful BCT adoption in the agricultural industry. Seshadrinathan & Chandra (2021) highlight the importance of organizational factors such as blockchain knowledge and top management support for successful BCT adoption in accounting applications. Finally, Malladhi (2023) emphasizes the importance of developing a new business model, managing costs, overcoming resistance to change, ensuring collaboration, and successfully addressing data security concerns to adopt new technologies like AI-OCR. In conclusion, organizational factors, including blockchain knowledge, business model readiness, top management support, and cost management, are critical for successfully adopting BCT across various industries.

Regarding environmental context, Akter (2022) investigated the factors influencing the adoption of BCT in accounting. They highlighted environmental factors such as illicit activity, business use cases, and support from trading partners. Upadhyay et al. (2021) examined BCT adoption in the UK automotive industry and identified environmental challenges such as government support and the regulatory environment. Similarly, Clohessy & Acton (2019) explored the influence of environmental factors on BCT adoption in companies based in Ireland. They identified factors such as the regulatory environment, trading partner support, political will, industry pressure, market dynamics, and government support.

Dai & Vasarhelyi (2017) proposed a new measurement and assurance paradigm that utilizes BCT and smart contract technologies for the accounting and auditing profession. They underscored the importance of environmental factors such as industry pressure, government support, and the regulatory environment, suggesting that these factors significantly influence the adoption of BCT. Kajla et al. (2023) identified a range of environmental challenges, including industry pressure, competitor pressure, regulatory environment, and normative, mimetic, and coercive factors, as critical for BCT adoption in the banking sector, implying that these factors should be carefully considered in BCT adoption strategies.

Odunlami & Samuel (2023) explored how BCT is perceived within the financial services industry. They highlighted environmental factors such as highly regulated environments, regulatory frameworks, competitor pressure, political will, existing regulations, illicit activity,

and market dynamics. Perera & Abeygunasekera (2022) studied the lack of adoption of BCT in accounting and auditing in Sri Lanka. They identified environmental challenges such as government support, political will, and the regulatory environment.

Rijanto (2021) explored patterns of business financing and BCT adoption in the agricultural industry. They identified environmental factors such as government support and the regulatory environment as critical for BCT adoption. Similarly, Seshadrinathan & Chandra (2021) examined the factors that influence the adoption of BCT technology in accounting applications. They identified environmental factors such as business use cases, trading partner support, government support, industry pressure, political will, and the regulatory environment. In summary, the regulatory environment, government support, industry pressure, political will, and market dynamics are significant environmental factors that shape the adoption of blockchain technology within organizations across various industries. These factors form the external context within which organizations make decisions about BCT adoption, influencing their perceptions of benefits, risks, and opportunities. Understanding these environmental factors is crucial for organizations considering BCT adoption.

Conclusion

The evolution of e-payment systems has had a significant impact on financial transactions, as Malaysian consumers increasingly rely on digital financial services. However, the effectiveness and efficiency of these systems are compromised by inconsistencies in adherence to SLAs, as highlighted by the Auditor General of Malaysia in 2022. This study aims to examine the feasibility of utilizing BCT-SC to improve SLA monitoring and penalty enforcement for e-payment collections within a Malaysian government agency. The findings indicate that BCT-SCs offer promising solutions for enhancing SLA management. Features such as decentralization, immutability, and real-time processing improve the speed, security, and transparency of e-payment processes. This research will focus on a single case study within a Malaysian government agency, the insights gained have significant implications for policymakers, practitioners, and industry player. By addressing gaps in SLA management and promoting accountability, the adoption of BCT-SCs can enhance the efficiency and effectiveness of the e-payment ecosystem. In conclusion, BCT-SCs represent an emerging technology with limited implementation. Industry player is opting to observe and assess its efficacy. In the public sector, implementation will involve more complex processes due to regulatory and legal constraints. Nevertheless, future studies should focus on developing new use cases that address specific issues to enhance the understanding of BCT-SCs. Therefore, creating a business process model framework for addressing SLA-related issues will provide a clearer understanding of the potential benefits of BCT-SCs in the future. Future research should prioritize identifying and analysing specific use case scenarios where BCT-SCs can be effectively applied. This will enable the development of detailed frameworks that not only address existing challenges but also demonstrate the practical advantages of BCT-SCs. This targeted approach will facilitate a deeper understanding of how BCT-SCs can be leveraged to enhance SLA monitoring and enforcement, ultimately contributing to more efficient and transparent e-payment collection processes in the public sector.

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