

## **A Conceptual Model for QR Code Payment Adoption in Sri Lankan Hotels: An Extended TOE Framework with Trust Perspective**

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### **Abstract**

*Quick Response code-based payment systems (QRPS) have gained increasing popularity due to their simplicity, cost-effectiveness, and compatibility with mobile technologies. Despite these advantages, the adoption of QRPS within the hotel sector remains relatively limited. This research seeks to identify the key factors influencing QRPS adoption from a hotel industry perspective. Drawing from a comprehensive review of the QRPS literature, we propose a conceptual model grounded in the Technology–Organization–Environment (TOE) framework. The model incorporates technological factors including perceived benefits, perceived compatibility, perceived information transparency, and perceived complexity; organizational factors including organizational innovativeness, organizational learning capability, and top management support; and environmental factors including consumer pressure, trading partner readiness, and government support. Furthermore, this study extends the TOE framework by integrating perceived trust as both a direct determinant and a moderating variable, acknowledging its critical role in the adoption of financial technologies in the hospitality industry. The proposed model will be empirically tested by collecting data from hotel managers in future research and aims to offer valuable insights for both academic scholars and policy makers seeking to enhance digital payment adoption in emerging economies.*

**Keywords:** QR code payment systems; digital payment adoption; hospitality industry; factors; perceived trust; TOE; Sri Lanka

## **Introduction**

### **1.1 Background of the Study**

The digital transformation of financial systems has accelerated significantly over the past two decades, reshaping how businesses conduct transactions and interact with customers. One notable advancement in this transformation is the adoption of Quick Response (QR) code-based payment systems, which have gained global traction due to their simplicity, low-cost implementation, and compatibility with mobile technologies (Khan et al., 2021; Sulistyaningsih & Hanggraeni, 2022). Originally developed in 1994 by Toyota's subsidiary DENSO for tracking automotive parts, QR codes have since evolved into a versatile tool employed across sectors - including tourism, aviation, retail, and hospitality - for contactless communication and secure data exchange (Rouby, 2019).

Across the Asia-Pacific region, including countries like China, Indonesia, and India, QR payment systems have become integral to the consumer experience. For example, Indonesia's standardized QR Code (QRIS) payment infrastructure exemplifies national-level efforts to unify digital financial services (Sulistyaningsih & Hanggraeni, 2022). In Sri Lanka, QR code-based payments are at a nascent stage, yet they align with the country's broader digital economy goals. Given the tourism and hospitality sector's vital contribution - comprising nearly 12% of GDP and being the third-largest source of foreign exchange - it is crucial to explore how hotels can adopt such systems to enhance efficiency, service quality, and customer trust (The World Bank, 2022; Junko et al., 2021).

Despite the global relevance of QR payment systems, limited empirical or conceptual research has examined the determinants of adoption within the hotel industry in developing economies, particularly Sri Lanka. Prior studies have primarily focused on customer perspectives or specific industries such as retail and MSMEs (Ahad & Busch, 2024; Hashimy et al., 2022), while the organizational adoption context in tourism and hospitality remains underexplored. Moreover, perceived trust, a critical factor in digital payment adoption (McKnight et al., 2002), has not been sufficiently integrated into existing TOE-based conceptual models, especially in the context of service-oriented industries in developing countries.

This study proposes a conceptual framework based on the Technology-Organization-Environment (TOE) model (Tornatzky et al., 1990), extended by incorporating perceived trust as both a direct antecedent and a moderator of key relationships. The TOE framework has been widely validated in explaining technology adoption at the firm level (Oliveira & Martins, 2011; Awa et al., 2016; Nguyen et al., 2022), making it an ideal base for analyzing QR adoption in hotels. By integrating perceived trust, the model offers a novel lens through which to understand how psychological and relational dimensions interact with technological, organizational, and environmental factors to shape adoption intentions. This framework is especially timely given the increased demand for touchless, secure, and fast payment solutions in the wake of global health crises and the emphasis on digitalization in Sri Lanka's post-crisis economic recovery strategy.

The primary objective of this conceptual paper is to develop and justify a model that identifies and organizes the factors influencing the adoption of QR code-based payment systems in Sri

Lankan hotels. The framework will serve as the basis for future empirical validation and policy recommendations.

The Central Research Question driving this study is thus: *What are the key technological, organizational, environmental, and trust-related factors influencing the adoption of QR-based payment systems in the Sri Lankan hotel industry?*

This conceptual paper makes three key contributions. First, it advances the TOE framework by incorporating perceived trust as both a direct and moderating construct, thereby offering richer explanatory power. Second, it focuses on the understudied hotel sector in Sri Lanka, which plays a central role in the country's economic and digital future. Third, it provides a foundational model for policy makers, technology providers, and hotel managers to develop targeted digital payment adoption strategies.

By identifying key determinants of QR adoption and the role of trust, this study lays the groundwork for future empirical research, contributing to the literature on digital financial services in emerging economies and helping businesses align with national digital transformation goals.

## **Literature Review**

### **2.1 Adoption of Quick Response (QR) Based Payment Systems**

Quick Response (QR) code-based payment systems have emerged as a revolutionary tool in the domain of digital financial services. These systems enable users to make payments by scanning a QR code using a smartphone application, facilitating contactless, fast, and secure transactions. The QR payment model is popular in many developing and developed countries due to its ease of use, affordability, and technological flexibility (Khan et al., 2021; Nguyen et al., 2022).

Research in this domain has emphasized multiple factors that influence the adoption of QR-based payments at the organizational and individual levels. From the organizational perspective, studies have highlighted the relevance of technological readiness, top management support, and trading partner readiness (Awa et al., 2016; Ahad & Busch, 2024). Environmentally, customer pressure and government support are also instrumental in motivating businesses to transition to QR payment systems (Sulistyaningsih & Hanggraeni, 2022).

The QR payment ecosystem is also seen as an enabler of financial inclusion and a key component of the cashless economy movement, especially in the Global South (Maduwansha & Boyagoda, 2022). In regions such as Southeast Asia, governments have played a proactive role in building infrastructure and interoperability among financial institutions to encourage widespread adoption (Hashimy et al., 2022). The benefits associated with QR payments include reduced transaction costs, improved customer convenience, better recordkeeping, and fraud reduction (Khan et al., 2021; Rouby, 2019).

## **2.2 Research Gaps Found in the Prior Research**

The adoption of Quick Response (QR) code-based payment systems has received increasing scholarly attention in recent years, particularly in the contexts of mobile commerce, digital payments, and financial inclusion (Dahlberg, Guo, & Ondrus, 2015). However, a review of existing literature reveals several critical gaps that warrant further investigation, especially within the hospitality sector of developing countries such as Sri Lanka.

First, while multiple studies have explored the technological and consumer-side factors influencing mobile and QR-based payment adoption (Kumar et al., 2018; Oliveira et al., 2016), limited attention has been paid to organizational-level determinants. This lack of emphasis on firm-level adoption, especially in the hotel industry, presents a notable gap, as business adoption dynamics differ significantly from individual user behavior (Alalwan et al., 2017).

Second, although the Technological-Organizational-Environmental (TOE) framework has been widely employed in the analysis of information technology adoption in various sectors (Tornatzky et al., 1990; Oliveira & Martins, 2011), its application to QR-based payment systems in hospitality remains scarce. Furthermore, there is limited integration of contextual psychological constructs, particularly trust, within the TOE framework when assessing technology adoption in developing countries (Gangwar et al., 2015). Trust is crucial in environments characterized by uncertainty and limited digital infrastructure, as it mitigates perceived risk and enhances adoption likelihood (Gefen et al., 2003).

Third, most prior research has focused on mature markets or urban regions in technologically advanced economies, with few studies conducted in South Asian or Sri Lankan contexts (Hewawasam et al., 2023a). Given the distinct socio-cultural, economic, and infrastructural conditions in Sri Lanka, especially in the hospitality industry, context-specific research is necessary to produce practically relevant insights. Sri Lankan hotels often cater to both international and local guests, which may influence adoption behaviour differently compared to domestic-only businesses.

Finally, there is a notable absence of comprehensive conceptual models that integrate both classical adoption theories, such as TOE, and moderating constructs like trust to explain adoption in organizational settings. Most studies take a fragmented approach, limiting their explanatory power in predicting organizational behaviour under real-world conditions (Gangwar et al., 2015; Almashawreh et al., 2024).

In response to these identified gaps, this study proposes an extended TOE framework that incorporates perceived trust as a contextual moderator to better understand the QR code payment adoption behaviour in Sri Lankan hotels.

## **2.3 Quick Response (QR) Based Payment Systems in Hotel Industries**

While considerable research has been conducted on QR payment adoption in retail and micro-enterprises, studies focusing on the hospitality sector remain limited. The hotel industry, as a part of the broader tourism ecosystem, is uniquely positioned to benefit from QR-based payments, especially due to the growing demand for contactless services in the post-pandemic era (Nguyen et al., 2022).

QR code systems allow hotels to offer seamless, hygienic, and efficient check-in/check-out experiences, restaurant payments, and concierge services. These touchpoints enhance customer satisfaction, reduce operational overhead, and align with evolving consumer preferences for mobile and digital services (McKnight et al., 2002). However, adoption is influenced by the hotel's technological infrastructure, managerial capabilities, and strategic outlook (Awa et al., 2016; Khan et al., 2021).

The integration of QR payments in the hotel sector can also support broader digital transformation objectives, enabling data-driven decision-making and customer relationship management. Despite these advantages, barriers such as perceived complexity, lack of digital readiness, and low consumer awareness may hinder successful implementation, particularly in small and medium-sized hotel enterprises (Ahad & Busch, 2024).

### **2.3 QR-Based Payment System Adoption in Sri Lankan Hotel Industry**

Sri Lanka's hospitality sector has shown increasing interest in digital technologies, particularly in response to the COVID-19 pandemic and the recent economic crisis. QR-based payment systems offer a timely solution to enhance operational resilience and attract international tourists accustomed to digital payment infrastructure (Junko et al., 2021). Despite these advantages, QR payment adoption in Sri Lanka remains at an early stage, with implementation uneven across the hotel industry.

Studies by Maduwansha and Boyagoda (2022) report that the country's overall cashless transaction behaviour is still evolving, and the digital divide between urban and rural hotel operators may further limit uptake. Nevertheless, QR code payment options are beginning to appear in major urban hotels and tourist-centric areas, supported by initiatives from the Central Bank of Sri Lanka to promote digital transactions. Moreover, Sri Lanka's roadmap for digital transformation emphasizes financial inclusion and ICT adoption as tools for economic recovery, especially in sectors like tourism which account for approximately 12% of GDP (The World Bank, 2022). In this context, hotels adopting QR-based systems can enhance customer convenience and brand trust while contributing to national-level digitalization goals.

However, there is a research gap in understanding the organizational-level factors influencing QR system adoption in Sri Lankan hotels. The application of theoretical models like the Technology-Organization-Environment (TOE) framework remains underutilized in this context, and constructs like perceived trust are yet to be deeply explored within empirical or conceptual studies on QR adoption in Sri Lanka's tourism industry.

## **Research Model and Hypotheses**

### **3.1 Technology–Organization–Environment (TOE) Framework**

The Technology–Organization–Environment (TOE) framework, developed by Tornatzky et al. (1990), is one of the most widely applied models for understanding technology adoption at the organizational level. The framework proposes that three critical contexts - technological, organizational, and environmental - jointly influence a firm's decision to adopt and implement technological innovations (Awa et al., 2016; Oliveira & Martins, 2011).

The technological context encompasses the internal and external technologies relevant to the firm. This includes the current technological infrastructure, tools, and systems in place, as well as the technologies available in the market for potential adoption (Oliveira & Martins, 2011). The organizational context refers to the firm's characteristics such as size, structure, managerial capabilities, human resources, and technological readiness. These factors influence a firm's ability to adopt and integrate new technologies (Awa et al., 2016). The environmental context involves the external pressures faced by the organization, such as competition, consumer behavior, regulatory influence, and support from partners or the government (Nguyen et al., 2022).

The TOE framework's adaptability is evidenced in diverse empirical applications. For instance, Hashimy et al. (2022) employed it to examine blockchain adoption in Spanish firms, analyzing elements such as perceived benefits, complexity, organizational readiness, and top-management support. In Indonesia's food and beverage MSMEs, Sulistyaningsih and Hanggraeni (2022) applied TOE to QR code adoption, revealing that competitive pressure, organizational preparedness, and third-party support significantly influenced adoption, which, in turn, enhanced enterprise performance. Moreover, Khan et al. (2021) used an extended TOE model to investigate mobile payments in China and Pakistan, confirming the significance of trading partner pressure, organizational readiness, and perceived benefits on behavioral intentions and usage. Nguyen et al. (2022) further expanded TOE within Vietnam's digital retailing context, underscoring its utility in assessing digital transformation challenges.

Recent Sri Lankan research further underscores the relevance of the TOE framework. Raveena et al. (2023) applied the TOE model to examine digital marketing adoption among Sri Lankan supermarkets. Their findings indicated that organizational factors, such as top management support, alongside environmental pressures, including consumer demand and trading partner expectations, as well as technological concerns like system security, significantly influenced firms' adoption intentions. Similarly, Malik et al. (2021) extended the TOE framework to study the organizational adoption of blockchain technology in the Australian context. Their study revealed that the relationship between key influencing factors and blockchain adoption is moderated by perceived risks. Collectively, these studies reinforce the value of the TOE framework in capturing internal capabilities, external pressures, and in analyzing both direct and moderated effects that shape innovation adoption decisions.

### **3.2 Rationale for Choosing the TOE Framework**

Although several theoretical frameworks have been extensively employed to examine the adoption of technological innovations at the organizational level, such as the Diffusion of Innovation (DoI) theory (Rogers et al., 2014) and Institutional Theory (Oliveira & Martins, 2011), the TOE framework offers greater explanatory breadth and contextual adaptability for this study. Unlike models that emphasize a single perspective, the TOE framework provides a comprehensive triadic lens, capturing technological enablers, organizational capabilities, and environmental dynamics as interrelated drivers of innovation adoption. Notably, many prominent adoption theories are either extensions or partial representations of TOE; for example, Institutional Theory focuses primarily on environmental pressures (Oliveira & Martins, 2011), while DoI includes technological and organizational elements (Rogers et al., 2014), both of which are integral dimensions within TOE. Furthermore, given the significant role of contextual factors in shaping adoption decisions, TOE is especially suited for analyzing

sector-specific innovations such as digital payment systems in the hospitality industry, where institutional, consumer, and infrastructural conditions vary markedly across settings (Malik et al., 2021). Its widespread empirical validation across diverse technologies, including electronic data exchange, enterprise resource planning, supply chain management, customer relationship management, cloud computing, and e-commerce, further affirms its relevance (Baker, 2012; Liu, 2019; Malik et al., 2021). One of TOE's core strengths lies in its capacity to unify the internal and external forces influencing adoption into a single coherent framework, making it particularly valuable for service industries undergoing digital transformation in developing economies, such as Sri Lanka's hotel sector.

In the context of this study, the TOE framework provides a robust theoretical foundation for examining the adoption of QR-based payment systems in Sri Lankan hotels. By identifying specific technological, organizational, and environmental factors, this research aims to develop a conceptual model that captures the drivers of adoption and supports decision-making in the hotel industry. Therefore, the following TOE-based dimensions are proposed to guide the development of hypotheses in this study:

- Technological Factors: perceived benefits, perceived compatibility, perceived information transparency, and perceived complexity.
- Organizational Factors: organizational innovativeness, and organizational learning capability, and top management support.
- Environmental Factors: consumer pressure, trading partner readiness, and government support.

Additionally, this study extends the TOE framework by introducing perceived trust as both a direct influence and a moderator, recognizing its importance in the adoption of financial technologies in the hospitality domain.

### **3.3 Technological Context**

#### **3.3.1 Perceived Benefits**

Perceived benefits refer to the extent to which an organization believes that adopting a specific technology will lead to performance improvements, cost reductions, operational efficiencies, or enhanced service quality (Oliveira & Martins, 2011). In the context of QR-based payment systems, these benefits may include faster transaction processing, reduced dependency on cash handling, enhanced customer satisfaction through convenience, improved transaction tracking, and better integration with digital recordkeeping systems (Malyshev, 2024; Lou et al., 2017).

From a technological standpoint, perceived benefits are considered a core driver of innovation adoption, particularly within the TOE framework. When hotel managers recognize the tangible advantages of QR payment systems - such as ease of use, improved service speed, reduced human error, and fraud prevention - they are more likely to support and invest in such technologies (Nguyen et al., 2022; Awa et al., 2016). Furthermore, QR payment systems offer significant operational advantages in the hospitality industry, where quick and seamless service is critical to enhancing guest experiences. By eliminating the need for physical contact during transactions, hotels can also improve hygiene standards - an increasingly important factor in the post-COVID era (Khan et al., 2021). In addition, the integration of digital payments

supports financial transparency and simplifies reconciliation processes for hotel accounting systems.

Prior studies from Hashimy et al. (2022) and Sulistyaningsih & Hanggraeni (2022) have shown that perceived benefits strongly influence an organization's intention to adopt digital payment innovations. As such, hotels that recognize and value these benefits are more likely to exhibit a stronger intention to adopt QR-based payment systems. Based on these arguments, the following hypothesis is proposed:

**Hypothesis 1 (H1).** *Perceived benefits positively influence the hotel's intention to adopt QR-based payment systems.*

### **3.3.2 Perceived Compatibility**

Perceived compatibility refers to the extent to which a new technology is perceived to be consistent with an organization's existing values, past experiences, workflows, and technological infrastructure (Oliveira & Martins, 2011). In the context of QR-based payment systems, compatibility relates to how easily the technology can integrate into the hotel's current point-of-sale systems, mobile platforms, customer service processes, and digital transformation strategies (Lou et al., 2017).

Compatibility is a critical determinant of innovation adoption because technologies that align with existing systems and practices require less adjustment, lower training costs, and less organizational resistance (Awa et al., 2016). When hotel decision-makers perceive that QR-based payments can smoothly align with their operational routines and customer expectations, their intention to adopt is likely to be stronger. Further, in service-driven industries like hospitality, high compatibility between digital payment technologies and the guest experience is especially important (Lou et al., 2017). For example, guests increasingly expect mobile-first, self-service, and contactless payment options that work seamlessly across booking, check-in, dining, and checkout activities. When QR payment systems match these expectations and integrate with hotels' service delivery models, they offer both technological and experiential alignment (Khan et al., 2021).

Empirical evidence also supports the role of compatibility as a key facilitator in technology adoption. Studies in various sectors - including hospitality, retail, and e-commerce - confirm that compatibility significantly affects adoption intentions by reducing implementation barriers and increasing perceived value (Nguyen et al., 2022; Hashimy et al., 2022). Accordingly, in this study, it is proposed that when hotel managers perceive QR-based payment systems to be compatible with their existing practices and systems, they will be more inclined to adopt them. Based on these arguments, the following hypothesis is proposed:

**Hypothesis 2 (H2).** *Perceived compatibility positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.3.3 Perceived Information Transparency**

Perceived information transparency refers to the degree to which users believe that a technology facilitates clear, accurate, accessible, and timely information exchange between stakeholders (McKnight et al., 2002). In the context of QR-based payment systems, this



involves the visibility and traceability of transaction details, customer data security, and the openness of digital interactions between hotels, guests, and payment platforms (Tanvi, 2023).

In service sectors like hospitality, information transparency is particularly important as it directly affects operational control, customer trust, and service quality. When hotels perceive that QR-based payment systems provide real-time transaction updates, digital receipts, and clear financial records, they are more likely to view the system as credible and secure. This perception reduces uncertainty and risk, which are often cited as major barriers to adopting digital financial services (Khan et al., 2021). Moreover, QR-based systems enhance managerial visibility over transactions and can integrate with enterprise resource planning (ERP) or hotel management systems, allowing for better financial reconciliation, fraud detection, and customer insights. This level of transparency is operationally beneficial and helps in complying with regulatory requirements and industry standards (Nguyen et al., 2022).

Studies in digital payment and e-commerce contexts have shown that higher perceived transparency strengthens technology acceptance by reducing perceived risk and increasing user confidence (Hashimy et al., 2022). For hotel managers in Sri Lanka, where trust in digital systems is still developing, transparency offered by QR payments may be a decisive factor in adoption. Based on these arguments, the following hypothesis is proposed:

**Hypothesis 3 (H3).** *Perceived information transparency positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.3.4 Perceived Complexity**

Perceived complexity refers to the degree to which a technological innovation is perceived as difficult to understand, implement, or use (Oliveira & Martins, 2011). In the context of QR-based payment systems, complexity may arise from the technical setup required for system integration, staff training, ongoing maintenance, or the perceived difficulty customers may face in using QR codes for payments (Faster Payments Council, 2025; Hart, 2025).

Within the TOE framework, complexity is considered a significant technological barrier that can hinder the adoption of innovations at the organizational level (Tornatzky et al., 1990). When hotel decision-makers perceive the QR-based payment system as too complicated or requiring substantial changes to existing workflows, they may be reluctant to pursue its adoption (Awa et al., 2016). This is particularly relevant in small and medium-sized hotels, where digital literacy among staff may be limited and where technical support infrastructure is minimal. Additionally, QR-based payment systems, although generally user-friendly, may still present perceived technical challenges relate to integration with existing point-of-sale systems, ensuring cybersecurity, or managing interoperability with multiple financial institutions (Faster Payments Council, 2025). These perceived challenges can negatively impact managerial confidence and delay adoption decisions (Khan et al., 2021).

Prior research confirms that higher levels of perceived complexity are negatively associated with adoption intention across various digital platforms, including blockchain (Hashimy et al., 2022), mobile payments (Nguyen et al., 2022), and ERP systems (Awa et al., 2016). As such, minimizing perceived complexity through better user interface design, training, and vendor support is often recommended as a strategic enabler of adoption. Given this background, the following hypothesis is proposed:

**Hypothesis 4 (H4).** *Perceived complexity negatively influences the hotel's intention to adopt QR-based payment systems.*

### **3.4. Organizational Context**

#### **3.4.1 Organization Innovativeness**

Organizational innovativeness refers to a firm's willingness, capability, and proactive orientation toward adopting new technologies, practices, or ideas to improve performance and competitiveness (Awa et al., 2016). In the context of QR-based payment system adoption, innovativeness reflects a hotel's openness to explore and implement digital payment solutions as part of its broader digital transformation strategy.

Organizations that are innovative are more likely to invest in novel technologies, take calculated risks, and quickly respond to technological changes in the environment. In the hotel industry, this can manifest through early adoption of mobile apps, self-service kiosks, digital check-ins, or QR-based payment systems - all of which enhance guest experience and operational efficiency (Khan et al., 2021). Innovative hotels typically perceive emerging technologies not as risks, but as opportunities to create service differentiation and gain competitive advantage.

Within the TOE framework, organizational innovativeness is recognized as a critical internal capability that determines how quickly and effectively a firm can integrate new technologies into existing operations (Oliveira & Martins, 2011). Empirical research supports this assertion; for instance, Awa et al. (2016) highlighted the significant role of organizational innovativeness in enterprise resource planning (ERP) adoption, while Nguyen et al. (2022) found a positive relationship between innovativeness and online retail adoption during digital transformation. In developing countries, where institutional and technological constraints are often more pronounced, an innovative organizational culture can serve as a catalyst for technology adoption by mitigating perceived risks and enhancing decision-making confidence (Hashimy et al., 2022). This is particularly relevant in the Sri Lankan hotel industry, where forward-thinking leadership and a culture of experimentation, exemplified by the partnership between the private bank HNB and Cinnamon Hotels to offer LankaQR payment solutions, are likely to influence the uptake of QR-based payment technologies (Hatton National Bank PLC, 2024). LankaQR (LankaPay, 2025), introduced in October 2018 by the Central Bank of Sri Lanka in collaboration with LankaClear and licensed financial institutions, is the country's national QR code payment system. It promotes financial inclusion by offering interoperability across banks, especially targeting small and medium-sized merchants. Considering these insights, the following hypothesis is proposed:

**Hypothesis 5 (H5).** *Organizational innovativeness positively influences the hotel's intention to adopt QR-based payment systems.*

#### **3.4.2 Organizational Learning Capability**

Organizational learning capability refers to an organization's ability to acquire, disseminate, interpret, and apply knowledge to improve its processes and adapt to change (Awa et al., 2016). It reflects a firm's capacity to learn from both internal experiences and external environments

to enhance innovation readiness and strategic alignment. In the context of QR-based payment adoption, Organizational learning capability plays a crucial role in enabling hotels to understand the technological landscape, evaluate potential benefits and risks, and build the internal competencies needed for implementation (Nikopoulou et al., 2023).

In the TOE framework, organizational learning capability aligns with the organizational context, influencing how well a firm can absorb and respond to new technologies. Organizations that foster continuous learning are more likely to experiment with emerging technologies, integrate new digital tools into their operations, and update procedures in response to technological change (Oliveira & Martins, 2011). This is especially relevant in dynamic service industries like hospitality, where customer expectations evolve rapidly and technological adaptability is essential.

Hotels with strong learning capabilities can better manage employee training, identify market opportunities related to QR-based systems, and leverage data generated from digital transactions for strategic decision-making. Such organizations are also more resilient to resistance to change, as learning fosters a culture of openness and innovation (Nguyen et al., 2022). Prior studies support this link, for example, Nikopoulou et al., 2023 and Awa et al. (2016) found that organizations with high learning orientation were more effective in adopting digital technologies and ERP systems, respectively. Similarly, Nguyen et al. (2022) emphasized that learning capability was a critical enabler of digital transformation in online retailing environments. In the context of hospitality, where digital payment integration is still emerging, organizational learning facilitates faster adaptation and better implementation outcomes. Therefore, it is hypothesised that:

**Hypothesis 6 (H6).** *Organizational learning capability positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.4.3 Top Management Support**

Top management support refers to the extent to which senior leaders or decision-makers in an organization are committed to, involved in, and supportive of the adoption and implementation of new technologies (Awa et al., 2016). In the context of QR-based payment systems, this includes the allocation of financial resources, provision of strategic direction, empowerment of employees, and visible advocacy for the innovation.

Within the TOE framework, top management support is considered a critical organizational factor that significantly shapes technology adoption decisions. Senior leadership plays a pivotal role in overcoming internal resistance, setting adoption priorities, managing change, and ensuring that adequate infrastructure and training are in place (Nguyen et al., 2022). Without strong managerial commitment, even beneficial technologies like QR payment systems may fail to gain organizational traction.

In the hospitality sector, where service quality, operational efficiency, and guest satisfaction are directly linked to competitive success, management endorsement of innovative technologies can accelerate adoption. For example, hotels adopting QR-based payments require investment in systems integration, employee training, and promotional activities to encourage customer usage. Top management's proactive engagement helps legitimize the initiative and motivates staff to adopt the change (Oliveira & Martins, 2011).

Empirical studies reinforce the importance of leadership support. For instance, Khan et al. (2021) found that top management support was a key enabler of mobile payment adoption across multiple commercial settings. Similarly, Hashimy et al. (2022) showed that blockchain adoption was significantly influenced by managerial willingness to champion the innovation and mobilize internal resources. Given these insights, it is posited that hotels with strong managerial backing will show a higher propensity to adopt QR-based payment systems. Thus, it is proposed that:

**Hypothesis 7 (H7).** *Top management support positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.5 Environmental Context**

#### **3.5.1 Consumer Pressure**

Consumer expectations and behaviour have increasingly become a driving force in shaping technological adoption in the hospitality industry. As digital payment habits grow, especially among younger and tech-savvy consumers, there is mounting pressure on service providers such as hotels to offer seamless, contactless, and secure transaction options. QR-based payment systems are perceived by customers as fast, convenient, and hygienic - especially in the post-pandemic environment - making their availability a competitive necessity.

In the context of hotels, customer satisfaction is directly linked to service innovation. When consumers demand modern payment options, their preferences can act as a form of market pressure that encourages hotels to innovate and adopt new technologies. Failing to respond to such pressure could result in customer dissatisfaction, negative reviews, or loss of repeat business. Therefore, hotels are more likely to adopt QR-based payment systems when they perceive strong consumer demand or risk losing their market relevance.

Prior research supports the notion that external pressures from stakeholders, including customers, significantly influence organizational technology adoption (Oliveira & Martins, 2011; Tornatzky et al., 1990). In the TOE framework, consumer expectations are often categorized as an environmental factor that motivates firms to respond with appropriate technological solutions. Thus, it is hypothesized that consumer pressure positively influences the hotel's intention to adopt QR-based payment systems.

**Hypothesis 8 (H8).** *Consumer pressure positively influences the hotel's intention to adopt QR-based payment systems.*

#### **3.5.2 Trading Partner Readiness**

Trading partner readiness plays a pivotal role in the adoption of QR-based payment systems. It refers to the extent to which external stakeholders, such as banks, fintech firms, and payment gateway providers, are technologically and operationally prepared to support hotels in implementing these systems. When trading partners provide adequate infrastructure, technical support, system integration, and reliability, hotels are more likely to adopt QR-based payment solutions with confidence. On the contrary, if service providers lack readiness or technical expertise, organizations may hesitate to proceed due to perceived risks and operational uncertainties.

Recent studies highlight that technological readiness among trading partners significantly influences business adoption of QR payment systems. For instance, Hewawasam et al. (2023b) found that service providers' technical support and payment network infrastructure were crucial for merchants' readiness to adopt QR code payments. Similarly, Savkovic et al. (2023) found that in hospitality sectors, including restaurants and hotels, the decision to implement digital payments was strongly influenced by the competence and reliability of third-party payment providers. Further, the external actors' capabilities directly affect a firm's technological decisions. This is further reinforced by empirical evidence showing that firms are more inclined to adopt technology when their partners demonstrate strong support, compatibility, and infrastructure (Setiawan & Gui, 2023).

In the Sri Lankan context, initiatives like LankaQR (LankaPay, 2025) have enabled a more collaborative ecosystem between hotels and financial institutions. The Central Bank's regulatory support and banks' readiness to provide QR infrastructure have increased merchant confidence, particularly in the tourism and hospitality industry. Therefore, it is hypothesized:

**Hypothesis 9 (H9).** *Trading partner readiness positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.5.3 Government Support**

Government support plays a pivotal role in fostering the adoption of digital technologies, particularly in developing countries where infrastructure, regulatory clarity, and financial incentives are critical enablers of technological innovation. In the context of QR-based payment systems, hotels are more likely to adopt such technologies when there is visible government backing in the form of policy support, subsidies, public awareness campaigns, secure digital infrastructure, and legal frameworks ensuring transaction safety. Prior studies confirm that proactive government initiatives positively impact the adoption of financial technologies (FinTech) and mobile payments, especially in service sectors such as hospitality (Alshamaila et al., 2013; Oliveira et al., 2014).

Prior studies have shown that government policies and digital transformation agendas significantly influence business readiness for innovation. For example, governments in emerging economies that invest in ICT infrastructure, offer adoption mandates, or launch national QR standards, such as Bank Indonesia's implementation of QRIS, provide crucial impetus for organizations to adopt QR-based systems (Badrawani, 2025; Chaudhuri et al., 2022). Furthermore, in countries like Sri Lanka, where hotel businesses may face budgetary or technical constraints, supportive government measures serve as a powerful motivator to overcome adoption barriers. Therefore, it is hypothesized that:

**Hypothesis 10 (H10).** *Government support positively influences the hotel's intention to adopt QR-based payment systems.*

### **3.6 Direct and Moderating Effects of Perceived Trust**

Trust is a critical determinant in the adoption of digital technologies (Beldad et al., 2010), particularly in financial transactions where the perceived risk is high. In the context of QR-based payment systems, perceived trust reflects the degree to which hotel management believes the system is reliable, secure, and capable of safeguarding financial and customer data. When

hotels perceive the technology as trustworthy, they are more likely to adopt it with confidence, especially when concerns such as data privacy and transaction fraud are mitigated.

Empirical studies consistently show that trust enhances intention to adopt financial technologies. For example, Jaruwachirathanakul and Fink (2005) found trust to be a significant predictor of e-banking adoption. Similarly, Oliveira et al. (2016) highlighted that trust plays a vital role in reducing perceived risk in mobile payment adoption. Therefore, in the hotel context, perceived trust is expected to positively influence the intention to adopt QR-based payment systems. Therefore, it can be hypothesized that:

**Hypothesis 11 (H11).** *Perceived trust positively influences the hotel's intention to adopt QR-based payment systems.*

Even when QR-based payment systems are perceived as beneficial, offering faster transactions, greater operational efficiency, and improved customer experience, hotels may still hesitate to adopt them if they lack trust in technology. In the context of the TOE framework, perceived benefits, fall under the technological dimension, representing performance-enhancing attributes. However, the presence of such benefits alone may not guarantee adoption unless organizations also feel confident in the reliability and security of the system. This is where perceived trust, a contextual psychological factor, plays a critical moderating role. Trust mitigates perceived risk and uncertainty, thereby strengthening the influence of perceived benefits on adoption decisions. When trust is high, the perceived technological advantages are more likely to be accepted and acted upon. Prior research supports this view, showing that trust enhances the impact of perceived usefulness or benefits on adoption intentions (Liu et al., 2005). Thus, integrating trust as a contextual moderator aligns with the TOE framework's flexibility to incorporate situational enhancers that shape organizational decision-making under real-world conditions. Therefore, it can be hypothesized that:

**Hypothesis 11a (H11a).** *Perceived trust moderates the relationship between perceived benefits and the hotel's intention to adopt QR-based payment systems, such that the relationship is stronger when perceived trust is high.*

Top management support is widely recognized as a critical organizational factor influencing technology adoption decisions, within the TOE framework (Tornatzky et al., 1990). Leadership commitment often determines whether sufficient resources, strategic alignment, and cultural readiness are in place for new technology implementation. However, the strength of this support can be significantly enhanced or diminished based on the level of perceived trust in technology. Trust enables top managers to feel more confident in allocating resources, taking calculated risks, and championing the adoption of digital innovations (Gefen et al., 2003). When trust in the QR-based payment system is high, top management is more likely to proactively endorse and facilitate its adoption across the organization. Conversely, low trust may lead to hesitation, even when the managerial will is present. Prior studies suggest that trust directly influences adoption and serves as a contextual enabler that strengthens the relationship between other antecedents and behavioral intention (Gangwar et al., 2015). Therefore, perceived trust is theorized to moderate the influence of top management support on adoption intentions.

**Hypothesis 11b (H11b).** *Perceived trust moderates the relationship between top management support and the hotel's intention to adopt QR-based payment systems, such that the relationship is stronger when perceived trust is high.*

Within the TOE framework, government support is considered a key environmental factor that facilitates the adoption of new technologies by shaping policy, infrastructure, and institutional incentives (Tornatzky et al., 1990). In the context of QR-based payment systems, this support may include ICT infrastructure investment, favourable regulatory frameworks, and digital payment incentives. However, the mere presence of government support does not always translate into actual adoption, especially in industries like hospitality where trust in digital infrastructure and data security is vital. Perceived trust acts as a contextual moderator that enhances the credibility and perceived safety of government-backed digital platforms. When hotels perceive the QR-based payment systems as trustworthy, they are more likely to respond positively to government efforts and align their organizational actions accordingly. Hooda et al. (2023) found that trust significantly influences how users and organizations respond to government-led digital initiatives, especially in environments where policy support must overcome institutional uncertainty or technological unfamiliarity. Thus, trust enhances the impact of government support by reinforcing confidence in the systems being promoted.

**Hypothesis 11c (H11c).** *Perceived trust moderates the relationship between government support and the hotel's intention to adopt QR-based payment systems, such that the relationship is stronger when perceived trust is high.*

### 3.7 Conceptual Model

The developed conceptual model is given in Figure 1.

## 4. Conclusion

This study proposed a conceptual model to explore the factors influencing the adoption of QR code-based payment systems in Sri Lankan hotels by extending the Technology-Organization-Environment (TOE) framework with the perceived trust perspective. Given the growing demand for secure, touchless, and efficient financial technologies in the hospitality sector, the model offers a timely and comprehensive approach to understanding digital payment adoption in developing economies. By integrating technological factors, including perceived benefits, perceived compatibility, perceived information transparency, and perceived complexity; organizational factors, including organizational innovativeness, organizational learning capability, and top management support; and environmental factors, including consumer pressure, trading partner readiness, and government support, the study provides a robust foundation for analysing adoption behaviour.

Importantly, the inclusion of perceived trust, as both a direct predictor and moderator, addresses a critical gap in existing literature, recognizing the role of trust in financial and digital service contexts. Trust can enhance or inhibit the impact of traditionally studied TOE factors, particularly in environments where digital maturity is uneven and concerns about cybersecurity, data privacy, and fraud remain prevalent.

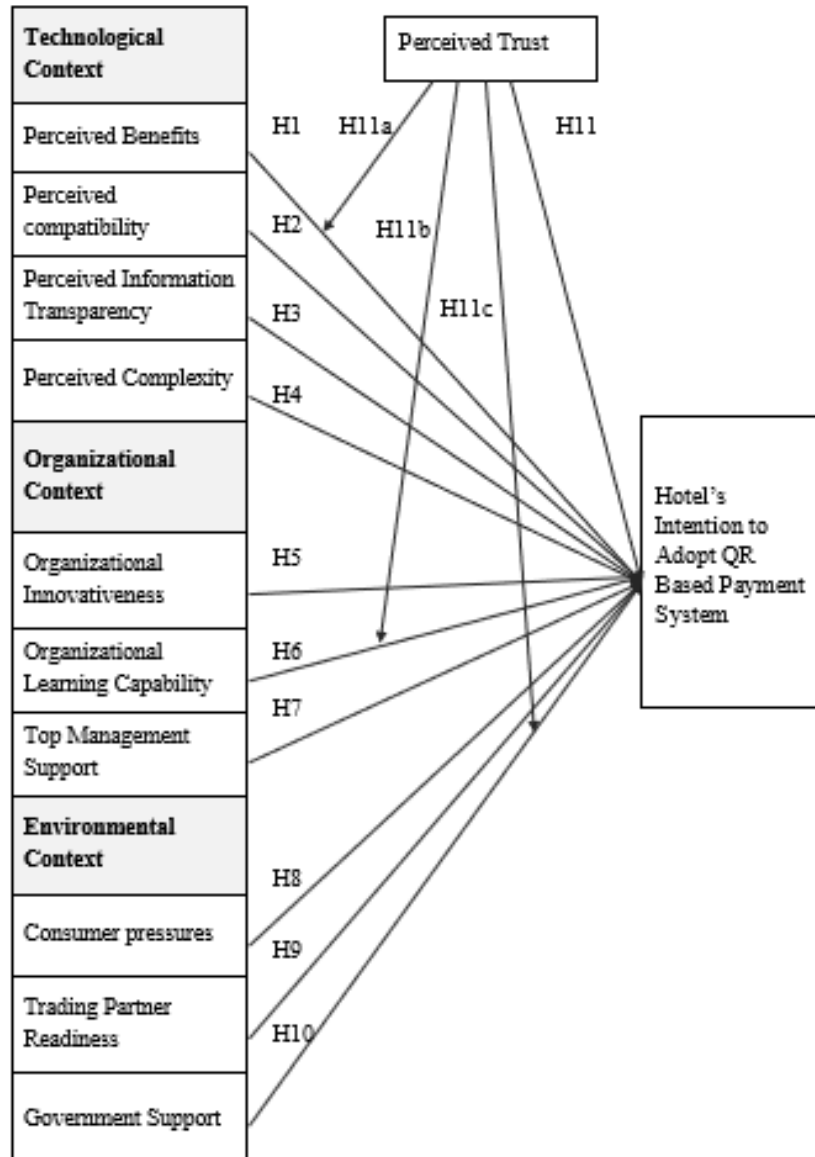


Figure 1: Conceptual model

The proposed model contributes theoretically by extending the TOE framework and practically by guiding hotel managers, policymakers, and technology vendors in designing adoption strategies that respond to both institutional and psychological enablers. It also aligns with Sri Lanka's broader digital transformation goals, especially in revitalizing its tourism and hospitality industry post-pandemic.

Future research should empirically test the model using survey-based or mixed-method approaches across different categories of hotels including star-rated, boutique, and SME-operated. In addition, comparative studies across regions or countries could further enrich the model's applicability and reveal contextual variations in adoption behaviour.



## References

- Ahad, T., & Busch, P. (2024). Exploring the factors influencing Mobile-based Ubiquitous System adoption in the Bangladesh RMG sector: A view through DOI and TOE. *The Electronic Journal of Information Systems in Developing Countries*, e12291.
- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99–110. Available at <https://doi.org/10.1016/j.ijinfomgt.2017.01.002>.<https://doi.org/10.1016/j.ijinfomgt.2017.01.002>.
- Almashawreh, R. E., Talukder, M., Charath, S. K., & Khan, M. I. (2024). AI Adoption in Jordanian SMEs: The Influence of Technological and Organizational Orientations. *Global Business Review*, 09721509241250273. Accessible at <https://journals.sagepub.com/doi/10.1177/09721509241250273>.
- Alshamaila, Y., Papagiannidis, S., & Li, F. (2013). Cloud computing adoption by SMEs in the north east of England: A multi-perspective framework. *Journal of Enterprise Information Management*, 26(3), 250–275. Available at <https://doi.org/10.1108/17410391311325225>.
- Awa, H. O., Ukoha, O., and Emecheta, B. C. 2016. Using TOE theoretical framework to study the adoption of ERP solution. *Cogent Business & Management*, 3(1), 1196571.
- Badrawani, W. (2025). Digital payment policy impact analysis on the intention to use QRIS (Quick Response Code Indonesian Standard) during COVID-19 pandemic. arXiv. Retrieved July 10, 2025, from <https://arxiv.org/abs/2506.11695>.
- Baker, J. (2012). The technology–organization–environment framework. In Y. K. Dwivedi, M. R. Wade, & S. L. Schneberger (Eds.), *Information systems theory: Explaining and predicting our digital society* (Vol. 1, pp. 231–245). Springer. Available at [https://doi.org/10.1007/978-1-4419-6108-2\\_12](https://doi.org/10.1007/978-1-4419-6108-2_12).
- Beldad, A., de Jong, M., & Steehouder, M. (2010). How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust. *Computers in Human Behavior*, 26(5), 857–869. Available at <https://doi.org/10.1016/j.chb.2010.03.013>.
- Chaudhuri, R., Gathinji, C., Tayar, G., & Williams, E. (2022). *Sustaining digital payments growth: Winning models in emerging markets*. McKinsey & Company. Retrieved July 10, 2025, from <https://www.mckinsey.com/industries/financial-services/our-insights/sustaining-digital-payments-growth-winning-models-in-emerging-markets>
- Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, 14(5), 265–284. Available at <https://doi.org/10.1016/j.eierap.2015.07.006>.
- Faster Payments Council. (2025). Overcoming instant payment QR code impediments to adoption: Usability. U.S. Faster Payments Council. Retrieved July 10, 2025, from <https://fasterpaymentscouncil.org/blog/14767/U-S-Faster-Payments-Council-Publishes-New-Report-on-Overcoming-Usability-Impediments-to-Instant-Payment-QR-Code-Adoption>

- Gangwar, H., Date, H., & Ramaswamy, R. (2015). *Understanding determinants of cloud computing adoption using an integrated TAM-TOE model*. *Journal of Enterprise Information Management*. 28 (1): 107–130.
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90. Available at <https://doi.org/10.2307/30036519>
- Hart, L. (2025). QR Code Payment System: Streamlining Transactions in the Digital Age. Stored. Retrieved July 10, 2025, from <https://www.joinstored.com/blogs/qr-code-payment-system>.
- Hashimy, L., Jain, G., & Grifell-Tatjé, E. (2022). Determinants of blockchain adoption as decentralized business model by Spanish firms - An innovation theory perspective. *Industrial Management & Data Systems*. 123(1), 204-228. Available at [https://mpira.ub.uni-muenchen.de/119903/1/MPRA\\_paper\\_119903.pdf](https://mpira.ub.uni-muenchen.de/119903/1/MPRA_paper_119903.pdf).
- Hatton National Bank PLC. (2024). *HNB partners with Cinnamon Hotels to offer LANKAQR payment solutions*. HNB Media Center. Retrieved July 10, 2025, from <https://cdn.cse.lk/pdf/company-articles/HNB-partners-with-Cinnamon-Hotels-to-offer-LANKAQR-payment-solutions.pdf>.
- Hewawasam, P. C., Jaharadak, A. A. B., Khatibi, A., & Azam, S. F. (2023a). Sri Lankan Consumers' Recommendations of QR Code-Enabled Payment Solutions to Create a Cashless Society: Do Moderating Variables Collaborate?. *Baltic Journal of Law & Politics*.
- Hewawasam, P. C., Jaharadak, A. A. B., Khatibi, A., & Azam, S. F. (2023b). QR code enabled payment solutions in creating a cashless society among Sri Lankan consumers—A literature review. *Journal of Service Science and Management*, 16(2), 110-132.
- Hooda, A., Gupta, P., Jeyaraj, A., Giannakis, M., & Dwivedi, Y. K. (2022). The effects of trust on behavioral intention and use behavior within e-government contexts. *International Journal of Information Management*, 67, 102553.
- Jaruwachirathanakul, B., & Fink, D. (2005). Internet banking adoption strategies for a developing country: The case of Thailand. *Internet Research*, 15(3), 295–311. Available at <https://doi.org/10.1108/10662240510602708>
- Junko, N., Aneesa, M. and Jagath, S. 2021. Digitalization is the way forward for Sri Lanka. Available at <https://blogs.worldbank.org/endpovertyinsouthasia/digitalization-way-forward-sri-lanka>. Accessed on 22 October 2023.
- Khan, N. A., Khan, A. N., Bahadur, W., & Ali, M. (2021). Mobile payment adoption: A multi-theory model, multi-method approach and multi-country study. *International Journal of Mobile Communications*, 19(4), 467–491.
- Kumar, R., Adlakaha, A., & Mukherjee, A. (2018). The effect of perceived security and grievance redressal on continuance intention to use M-wallets in a developing country. *International Journal of Bank Marketing*, 36(7), 1170–1189. Available at <https://doi.org/10.1108/IJBM-04-2017-0077>.
- LankaPay. (2025). *LANKAQR*. Retrieved July 10, 2025, from <https://www.lankapay.net/en/for-financial/lanka-qr>

- Liu, C., Marchewka, J. T., Lu, J., & Yu, C. S. (2005). Beyond concern: A privacy–trust–behavioral intention model of electronic commerce. *Information & Management*, 42(1), 127–142. Available at <https://doi.org/10.1016/j.im.2004.01.003>.
- Liu, C. (2019). Adoption at Organizational Level: Literature Review of TOE Framework and DOI Theory. In *International Journal of Science and Business* (Vol. 3, Number 2, pp. 179–195). Zenodo. Available at <https://doi.org/10.5281/zenodo.2631413>.
- Lou, L., Tian, Z., & Koh, J. (2017). Tourist satisfaction enhancement using mobile QR code payment: An empirical investigation. *Sustainability*, 9(7), 1186.
- Maduwansha, N. A. N. J., & Boyagoda, E. M. G. P. B. (2022). Review the Behavior of Cashless Transactions Regarding Economy of Sri Lanka (2010-2020). *Open Journal of Social Sciences*, 10(10), 318-340.
- Malik, S., Chadhar, M., Vatanasakdakul, S., & Chetty, M. (2021). Factors affecting the organizational adoption of blockchain technology: Extending the technology–organization–environment (TOE) framework in the Australian context. *Sustainability*, 13(16), 9404. Available at <https://www.mdpi.com/2071-1050/13/16/9404>
- Malyshev, A. (2024). QR Code Payments: A Win-Win for Banks and Users. *SDK.finance*. Retrieved July 10, 2025, from <https://sdk.finance/qr-code-payments/>
- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information systems research*, 13(3), 334-359.
- Mensah, I. K., Dadson, G. E., Mwakapesa, D. S., & Ukolov, V. F. (2024). The determinants of Mobile government services adoption: The moderating effect of perceived government support (PGS). *Information Development*, 40(1), 110-130. <https://journals.sagepub.com/doi/pdf/10.1177/02666669221089656>
- Nguyen, T. H., Le, X. C., & Vu, T. H. L. (2022). An extended technology–organization–environment (TOE) framework for online retailing utilization in digital transformation: Empirical evidence from Vietnam. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 200.
- Nikopoulou, M., Kourouthanassis, P., Chasapi, G., Pateli, A., & Mylonas, N. (2023). Determinants of digital transformation in the hospitality industry: Technological, organizational, and environmental drivers. *Sustainability*, 15(3), 2736.
- Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at firm level. *The Electronic Journal Information Systems Evaluation*, 14(1), 110–121.
- Oliveira, T., Thomas, M., & Espadanal, M. (2014). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management*, 51(5), 497–510. <https://doi.org/10.1016/j.im.2014.03.006>
- Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, 61, 404–414. <https://doi.org/10.1016/j.chb.2016.03.030>
- Raveena, J.M.D., Alexander, R., Venujan, K., & Thompson, N. (2023). Factors Influencing Adoption of Digital Marketing by the Supermarkets in Sri Lanka. Accessible at: <https://aisel.aisnet.org/acis2023/62/>

- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432-448). Routledge.
- Rouby, I. (2019). The adoption of “QR codes” in the tourism sector: the case of Egyptian tourism students. *Journal of tourism. Research*, 110.
- Savkovic, M., Lalic, D. C., & Iliskovic, Z. (2023). Investigating Readiness and Need for New Digital Payment Methods in the Catering Establishments: Assessment of the Current Status and Future Opportunities in the Republic of Serbia. Accessible at: <https://jetie.pubpub.org/pub/8c0toqrb/release/1>
- Setiawan, S., & Gui, A. (2023). *Determinants of cloud computing adoption in Indonesia: A meta theoretical framework*. *Journal of Information Systems and Technology Management*, 20(66), 1–15. Retrieved July 10, 2025, from [https://www.researchgate.net/publication/330575788\\_Determinants\\_of\\_Cloud\\_Computing\\_Adoption\\_among\\_SMEs\\_in\\_Sri\\_Lanka\\_A\\_Meta\\_Theoretical\\_Framework](https://www.researchgate.net/publication/330575788_Determinants_of_Cloud_Computing_Adoption_among_SMEs_in_Sri_Lanka_A_Meta_Theoretical_Framework)
- Sulistyaningsih, H., & Hanggraeni, D. (2022). Investigating the adoption of QR Code Indonesian Standard through organizational and environmental factors and its impact on micro, small, and medium enterprise performance. *Global Business and Management Research*, 14(3s), 962–982. <http://www.gbmrjournal.com/pdf/v14n3s/V14N3s-67.pdf>
- Tanvi, S. (2023). How UPI QR code payments can increase financial transparency. BharatUPI. Retrieved July 10, 2025, from <https://www.bharatupi.com/how-upi-qr-code-payments-can-increase-financial-transparency/>.
- The World Bank. (2022). The World Bank in Sri Lanka. Retrieved from <https://www.worldbank.org/en/country/srilanka/overview>. Accessed on 2 January 2024.
- Tornatzky, L. G., Fleischer, M., & Chakrabarti, A. K. (1990). *The Processes of technological innovation*. Lexington Books.