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Building trust in cybernetic payment network: Insights from an emerging economy

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ABSTRACT

This study investigates customers' trust and behavioural intentions regarding the use of cybernetic payment network services in an emerging country, focusing on perceived quality, system quality, and perceived image. Data from 324 respondents in Bangladesh were collected via a self-administered Google survey form distributed through email, WhatsApp, and Messenger using purposive sampling. The SmartPLS-4 software was used to assess construct validity and hypothesized path coefficients. Results indicate that perceived quality, system quality, and image significantly influence perceived trust in cybernetic payment network services. Additionally, perceived trust and system quality positively impact behavioural intention to use these services. Furthermore, perceived trust mediates the relationship between behavioural intention and system quality, perceived quality, and image. The study underscores the importance for cybernetic payment network service providers to enhance perceived quality, system quality, and perceived image to foster trust and promote adoption. It highlights the pivotal role of trust in driving customers' intention to adopt these services, urging providers to prioritize efforts in building trust among users. This study contributes to the limited literature on the impact of perceived quality, system quality, and perceived image on customers' inclination to use cybernetic payment network services, offering valuable insights for bank managers and policymakers to formulate effective strategies for sustaining innovation and enhancing adoption rates.

1. Introduction

Cybernetic payment networks are gaining popularity as a convenient and accessible option for financial transactions (Mahmud et al., 2023). The cybernetic Payment Network stands out for its potential to deliver faster transaction speeds and reduced costs. For cybernetic payment network, their operation is facilitated by secure storage and encryption of users' payment information and passwords. This ensures the safe-keeping of sensitive data and enables seamless transactions across various platforms and services. Additionally, cybernetic payment network often incorporate authentication mechanisms, such as biometrics or PIN codes, to verify users' identities and enhance security further compared to traditional Internet Banking. Moreover, the network is meticulously engineered to operate seamlessly around the

clock and free from central points of failure. cybernetic payment network, can benefit from resilience against system downtime and maintenance disruptions through various means. They achieve this by implementing robust security measures, redundant infrastructure, and efficient backup systems. It maintains redundant servers and data centers to ensure continuous service availability. Additionally, they employ encryption techniques to safeguard users' financial information and employ multi-layered security protocols to mitigate the risk of cyber threats. Furthermore, cybernetic payment network platforms regularly undergo maintenance and updates to enhance performance and security, typically scheduled during off-peak hours to minimize disruption to users. This enables and increases accessibility to financial services, irrespective of geographical barriers or economic status. Consequently, as more people gain access to secure and efficient payment systems, the

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potential for economic empowerment and upliftment increases, contributing to a more inclusive global economy. Thus, this technology can promote financial inclusion and reduce economic inequality in developing countries. Financial inclusion is essential in bridging economic and social gaps, particularly in extreme poverty, which has recently increased for the first time in two decades (BBC, 2020; Amaliah et al., 2024). Cybernetic payment networks can help connect people to the financial system by enabling individuals to send and receive money digitally without a physical bank account. However, less than half of the population in emerging markets has a bank account, and poverty, low earnings, and low financial literacy can discourage saving in these regions (Bech et al., 2018). Financial inclusion can provide affordable and sustainable financial services for individuals and businesses, stimulating economic growth and promoting gender equality (EY, 2018).

Understanding cybernetic payment networks might be initially challenging for consumers used to traditional payment methods. Firstly, trust and security concerns loom large, as users may hesitate to store payment information digitally and question the safety of their funds and personal data. Secondly, a seamless user experience is crucial for adoption; if cybernetic payment networks are difficult to use or incompatible with popular payment methods and platforms, users may be reluctant to adopt them. Additionally, uncertainty about regulatory environments and the perceived benefits compared to traditional methods can impact adoption rates. Thirdly, clear communication, education, and support are essential for fostering confidence and encouraging widespread adoption. Despite these challenges, over 1.7 billion people, representing 31 % of the global adult population, lack access to basic financial services, with Asia, Africa, and Latin America being the most affected regions (Demircug-Kunt et al., 2018). Moreover, cybernetic payment networks offer a promising solution to this issue. Often built on decentralized platforms like blockchain technology, they have the potential to extend financial services to underserved populations by leveraging the internet and digital technologies. Operating without physical bank branches or intermediaries, these networks offer global reach that can transcend geographical barriers. Additionally, with reduced transaction costs compared to traditional banking services, cybernetic payment networks make financial services more accessible and affordable to individuals in regions with limited banking infrastructure. Furthermore, the empowerment provided by cybernetic payment networks, through features like peer-to-peer transactions, enables individuals to have greater control over their financial assets, addressing trust issues in centralized financial institutions. Thus, cybernetic payment networks have the potential to play a transformative role in increasing financial inclusion and empowering underserved communities worldwide. However, the relationship between cybernetic payment networks and internet banking has been a topic of debate among researchers, with some maintaining that cybernetic payment networks are an essential component of internet banking, while others view them as separate technologies with distinct functions. Although cybernetic payment networks can support online banking, they are not mandatory for internet banking. Therefore, the interrelationship between these technologies remains a topic of discourse among scholars.

Moreover, with reduced transaction costs compared to traditional banking services, cybernetic payment networks make financial services more accessible and affordable to individuals in regions with limited banking infrastructure. Additionally, the empowerment provided by cybernetic payment networks, through features like peer-to-peer transactions, enables individuals to have greater control over their financial assets, addressing trust issues in centralized financial institutions. Thus, cybernetic payment networks have the potential to play a transformative role in increasing financial inclusion and empowering underserved communities worldwide. However, the relationship between cybernetic payment networks and internet banking has been a topic of debate among researchers, with some maintaining that cybernetic payment networks are an essential component of internet banking, while others view them as separate technologies with distinct functions.

Although cybernetic payment networks can support online banking, they are not mandatory for internet banking. Therefore, the interrelationship between these technologies remains a topic of discourse among scholars.

This study holds significant importance within the realm of cybernetic payment networks, particularly in the context of developing countries. Traditional banking services are often inaccessible to many ordinary citizens, especially in rural areas, due to a lack of conventional bank branches and extensive documentation requirements (Khatun et al., 2021). In contrast, cybernetic payment networks have gained popularity in emerging countries, where millions lack traditional banking access, as they require minimal documentation and no physical infrastructure (Akhter et al., 2020). This accessibility has allowed companies to expand into new regions, increase their consumer base, and create jobs in emerging economies. However, trust in cybernetic payment networks remains a primary concern for customers and plays a pivotal role in their decision-making process when choosing a service provider (Sharma and Sharma, 2019). Additionally, perceived quality, system quality, and image also contribute to establishing confidence and selecting a cybernetic payment network service (Sharma and Sharma, 2019). Despite the evident strong relationship between perceived quality, system quality, perceived image, and trust, limited studies have examined these relationships (Ashrafi et al., 2022). Hence, this study offers valuable insights for government officials, cybernetic payment network operators, and other stakeholders in developing market economies. Its outcomes can also be applied to other emerging nations facing similar social and economic factors (Shareef et al., 2018; Abdurrahman et al., 2024; Sharma and Sharma, 2019; Ashrafi et al., 2022).

The introduction of cybernetic payment systems in Bangladesh represents a pioneering advancement in the financial technology landscape, particularly within emerging economies. These systems are uniquely designed to align with Industry 4.0's vision of digitalization and interconnectedness, driving the nation's progress towards a fully digital economy. Unlike traditional fintech service providers, cybernetic payment systems offer a versatile platform capable of handling a wide array of financial transactions, from routine consumer purchases to complex business-to-business payments and cross-border remittances. This multifunctionality enhances financial inclusion, providing broader access to banking services for underserved populations and promoting economic participation, especially in rural areas. By facilitating seamless, efficient, and transparent financial operations, these systems contribute significantly to socio-economic development and support the government's goal of creating a cashless economy. Leveraging cutting-edge technologies such as blockchain, artificial intelligence, and machine learning, cybernetic payment systems ensure secure and scalable financial transactions, building user trust and confidence. Thus, their implementation marks a crucial milestone in Bangladesh's digital transformation, underscoring their novelty and potential to revolutionize the financial landscape of emerging economies.

We posit that examination of these variables is pivotal for understanding cybernetic payment systems. Firstly, trust is paramount for instilling user confidence in system security and reliability, deeply rooted in Human-Computer Interaction (HCI) theory's emphasis on trust as fundamental to technology adoption. Research on trust dynamics within these systems provides insights into user behavior, informing the design of interfaces fostering trust and usability. Secondly, perceived quality significantly shapes user satisfaction and system engagement, particularly vital for reaching underserved areas, resonating profoundly with HCI theory's view of perceived quality as central to user experiences. Investigating factors like interface design and functionality can refine perceived quality within cybernetic payment systems, enhancing user satisfaction. Moreover, system quality directly influences technical performance, thus bolstering user confidence through reliability—an essential aspect of HCI theory. Exploring reliability, availability, and performance efficiency offers avenues for optimization and improvement, ensuring seamless interactions. Lastly, perceived image

profoundly impacts system reputation and adoption, reflecting HCI theory's emphasis on user perceptions toward technology. Research on branding, marketing, and user interface design's influence on perceived image offers actionable insights, guiding strategies to enhance system credibility and appeal.

Many prior studies have been conducted on cybernetic payment networks by employing various models to explain consumers' attitudes and behavioural intention towards using such novel services. For example, a study by Kınış and Tanova (2022) examined users' intention to adopt e-wallet in North Cyprus by integrating TAM and extended it by incorporating trust into the model. Another study by George and Sunny (2021) formed a comprehensive model by combining diffusion of innovation, UTAUT2, and Trust-theoretic Model to explain cybernetic payment network adoption and use behaviour. Shaw et al. (2022) investigated users' Cybernetic payment network adoption behaviour in developed nations like Canada, Germany and the United States by employing a more parsimonious Diffusion of Innovations model by integrating components such as compatible advantage, security, privacy and ubiquity. Ilieva et al. (2023) employed the combination of TAM and UTAUT to explain the Bulgarian users' intention to use cybernetic payment networks. They highlighted that perceived ease of use, social influence, facilitating conditions, lifestyle compatibility, and perceived trust impacted their intention to use e-wallets. Yang et al. (2021) used a combination of UTAUT and TPB and extended the model by integrating lifestyle compatibility and perceived trust. Moreover, Jaiswal et al. (2022) investigated users' Cybernetic payment network adoption using a cross-sectional approach using UTAUT. They found that performance expectancy, effort expectancy, facilitating conditions and individual mobility impacted their intention to use cybernetic payment networks.

While extensive literature exists on the technical aspects of cryptocurrencies and cybernetic payment networks, there's a notable gap in behavioral studies, particularly within the context of developing countries. The majority of research in this domain has been conducted in developed nations, leaving a significant void in understanding the motivating factors for individuals to adopt cybernetic payment networks in developing regions. For instance, Singh and Ghatak's (2021) study stands out as the first to apply the Technology Acceptance Model (TAM) in a developing nation's context, incorporating variables like risk, cost, compatibility, usefulness, and ease of use to predict customers' inclination towards cybernetic payment networks. Moreover, the significance of system quality in influencing users' adoption intentions has been insufficiently emphasized in prior research. While prior research has extensively examined factors like risk, cost, compatibility, usefulness, and ease of use, there's been a notable neglect of system quality, which plays a crucial role in shaping user satisfaction and trust in technology. Additionally, while the direct link between perceived trust and intention has been studied, there's a scarcity of research exploring the mediating role of perceived trust. This highlights a substantial gap in understanding how trust perceptions impact individuals' intentions to adopt cybernetic payment networks in developing countries, potentially impeding initiatives aimed at fostering adoption and financial inclusion in these regions.

Additionally, while prevalent models like TAM, UTAUT, DOI, and TPB have been extensively utilized in studies on m-payment and m-banking to examine users' intentions, the specific influence of perceived image on adoption intention of cybernetic payment network remains unaddressed in the existing literature. Despite its recognized importance in consumer behavior literature, the impact of perceived image on adoption intention has not been adequately investigated in the context of cybernetic payment network. This research gap is significant because perceived image can have profound effects on users' decision-making processes regarding the adoption of novel technologies. Lastly, while numerous studies have explored factors influencing consumers' intentions to adopt cybernetic payment networks, the specific inclusion of perceived quality as a predictor variable has been lacking in the existing literature. This is noteworthy because perceived quality can

significantly influence consumers' attitudes and behaviors towards adopting new technologies. For instance, consumers are more likely to adopt cybernetic payment networks if they perceive them to be reliable, user-friendly, and capable of meeting their needs effectively. Therefore, addressing this research gap is essential for advancing knowledge in the field of cybernetic payment networks and improving the effectiveness of initiatives aimed at promoting their adoption among consumers. Against the backdrop of this discussion, the research questions that we endeavour to investigate are as follows:

RQ1. Do factors such as perceived quality, system quality, and image determine users' trust and intention to use cybernetic payment network?

RQ2: Does perceived trust mediate the relationship of perceived quality, system quality, and perceived image with their intention to use cybernetic payment network?

This study stands out for its unique contribution to the existing literature on cybernetic payment networks by introducing novelty in several key areas, and its contribution is threefold. Firstly, although prior studies in cybernetic payment network have unveiled perceived trust as a critical factor in influencing users' attitudes and trust, very little is known regarding the mediating role of perceived trust. Therefore, this study contributes by investigating the mediating role of trust in influencing users' intention to adopt cybernetic payment networks. Secondly, while prior studies have investigated the impacts of components like perceived ease of use, usefulness, social influence, and compatibility in influencing users' adoption intention, the effect of users' quality of cybernetic payment networks' perception, image and system characteristics remains scant. Our study adds to the existing body of literature and extends the theoretical depth by integrating the impacts of perceived quality, system quality and perceived image in influencing users' intention to use cybernetic payment networks. Moreover, most investigations about the adoption behaviour of cybernetic payment network were conducted in developed countries. Against this backdrop, our study contributes to and enhances the current literature by explaining users' intention to adopt cybernetic payment networks in a context of an emerging economy which may assist marketers and policy-makers in gaining valuable and practical insights on how to foster the adoption rate of the cybernetic payment network.

2. Literature review

2.1. Theoretical underpinning: human-computer interaction (HCI)

Human-Computer Interaction (HCI) serves as an apt theoretical foundation for investigating the intention to use cybernetic payment networks due to its focus on the intricate interplay between individuals and technology (MacKenzie, 2024; Gupta et al., 2023). HCI delves into the nuances of user experience, usability, and interaction design, providing insights into how users perceive and interact with technological systems (Kashef et al., 2021; Yuen et al., 2021). The variables of perceived quality, system quality, and perceived image, inherent in HCI principles, are particularly relevant in the context of cybernetic payment networks. Perceived quality reflects users' subjective assessment of the network's functionality and reliability, while system quality encompasses technical attributes and design characteristics crucial for user satisfaction. Additionally, perceived image captures users' perceptions of the network's reputation and social acceptance, which significantly influence their trust. By understanding these factors through the lens of HCI, valuable insights can be obtained into users' trust and behavioral intentions towards adopting and utilizing cybernetic payment networks (Bach et al., 2024), thus enriching our understanding of user-system interactions in the digital age.

We posit that, Human-Computer Interaction (HCI) theory in examining the intention to use cybernetic payment networks proves impactful on several fronts. Firstly, HCI's user-centric design approach ensures that payment systems are tailored to users' needs and preferences, thereby enhancing usability and user experience. Secondly, by

employing HCI methodologies for usability evaluation, designers can identify and address usability issues within cybernetic payment networks, ultimately streamlining user interactions and facilitating adoption (Rapp et al., 2021). Thirdly, HCI principles help enhance trust and perceived quality by focusing on factors such as system reliability and visual aesthetics, thereby increasing users' confidence in the security and reliability of the payment platform (Rendell et al., 2022). Moreover, HCI theory guides the optimization of user interfaces, making them intuitive and accessible, which in turn facilitates user comprehension and reduces cognitive load (Hollender et al., 2010). Lastly, HCI frameworks for understanding user behavior enable the prediction of users' intentions to adopt and use cybernetic payment networks, empowering designers to tailor interventions to promote adoption and usage effectively. In sum, integrating HCI theory enriches the design and implementation of cybernetic payment networks, fostering user acceptance and utilization in an increasingly digital landscape.

2.2. Influence of perceived quality on trust and behavioural intention

The term "perceived quality" is one's evaluative judgment concerning the excellence of a service (Loureiro and González, 2008). Prior literature has highlighted perceived quality as a multidimensional construct and focused on its functional and technical sides (Parasuraman et al., 1988; Wicaksono et al., 2023). However, the dimension nature used for the quality measurement is reported to differ significantly across various sectors and industries (Ryu and Ko, 2020). Prior studies have focused on multiple perceived quality dimensions, including tangibility, responsiveness, empathy, reliability, and tangibility (Dandis et al., 2022; Yang et al., 2021). This comprehensive view of perceived quality resonates with HCI's emphasis on understanding and optimizing user interactions with technology across multiple dimensions. Additionally, the cue utilization theory posited by Collins-Dodd and Lindley (2003) suggests that consumers derive perceptions of product quality from both external and internal cues, a notion that aligns with HCI's exploration of user perceptions and experiences. Moreover, Kardes et al. (2004) propose that consumer trust is influenced by their evaluative judgments of product quality, indicating a direct link between perceived quality and trust—a central theme in HCI research. Furthermore, as highlighted by Ashrafi et al. (2022) and Ryu and Ko (2020), poor perceived quality diminishes consumer trust, while improved perceived quality enhances trust and satisfaction, emphasizing the importance of perceived quality in shaping user attitudes and behaviors. Therefore, considering perceived quality as a critical antecedent fostering users' trust and adoption decisions aligns with prior HCI literature emphasizing the significance of perceived quality in technology acceptance and usage (McKnight et al., 2004; Pavlou and Gefen, 2004). Additionally, the assertion by Qalati et al. (2021) that consumers' trust strengthens as perceived quality rises underscores the interconnectedness between these variables within the HCI framework, highlighting the need for a comprehensive examination of perceived quality in cybernetic payment network adoption.

Furthermore, prior literature demonstrated that consumers' quality perception affects their willingness and behavioural intention to use particular products, brands and services. For example, Muskat et al.'s (2019) study on the tourism industry highlighted that consumers' perceived quality is a crucial determinant that drives consumers' behavioural intention. Besides, many studies have been conducted in various sectors, including ride-sharing, automotive, travel and tourism, social media platforms, healthcare, fitness, organic food, hotel, and e-product have shown that consumers' enhanced quality perception results in increased trust and stronger behavioural intentions (Tumaku et al., 2023; Ashrafi, 2024; Dias et al., 2021; Assaker et al., 2020; Qi et al., 2021; Muskat et al., 2019; Konuk, 2018; D'Ambra et al., 2020). Thus, in the context of Cybernetic payment network, this study argues that perceived quality will enhance users' trust and inclinations towards adopting cybernetic payment networks. Thus, we propose the following

hypotheses:

Hypothesis 1: Perceived quality (PQ) positively influences perceived trust (TR) in cybernetic payment network services

Hypothesis 2: Perceived quality (PQ) has a direct influence on users' inclination towards using cybernetic payment network services

2.3. System quality's impact on trust and behavioural intention

System quality refers to consumers' evaluation of a system's performance (DeLone and McLean, 2003). System quality, as defined by DeLone and McLean (2003), represents consumers' evaluation of a system's performance, aligning with HCI's emphasis on understanding and optimizing user interactions with technology. This evaluation extends beyond mere functionality to encompass technical aspects such as reliability, performance, security features, and integration capabilities, as highlighted by Kim et al. (2004). HCI research emphasizes that users form their initial opinions based on their experiences with IT systems, particularly regarding technology-oriented services, as noted by Lee and Chung (2009). Moreover, Zhou (2011) underscores the importance of effective navigation, prompt response, and clear layout in enhancing user trust, which resonates with HCI's focus on usability and user-centered design principles. Furthermore, poor system quality can lead users to perceive a lack of effort or investment by service providers, negatively impacting their reputation and credibility, as suggested by Qalati et al. (2021). This aligns with HCI's emphasis on user perceptions and experiences shaping attitudes and behaviors towards technology. Conversely, a high-quality system engenders trust and confidence among users, enabling seamless transactions and fostering positive user experiences. Therefore, considering system quality as a critical determinant of user trust and adoption decisions aligns with HCI's overarching goal of optimizing user interactions with technology to enhance usability, satisfaction, and ultimately, technology acceptance. Prior literature suggests that system quality catalyses consumers' perceived trust and behavioural intention to adopt novel technologies (Bilal et al., 2022; Mailizar et al., 2021; Zhou, 2011). Scholars have conducted several investigations on assessing the impact of system quality on consumers' trust in various industries, including online banking, e-commerce, e-learning, cloud enterprise resource planning, and Cybernetic payment network payments, and showed that system quality positively impacts users' behavioural intention and trust (Bilal et al., 2022; Mailizar et al., 2021). Therefore, based on the mobile-banking context, a high-quality system may enhance users' trust and willingness to use cybernetic payment network.

Hypothesis 3: System quality positively influences perceived trust in cybernetic payment network services

Hypothesis 4: System quality directly and positively influences users' inclinations towards using cybernetic payment network services

2.4. Perceived image's influence on trust and behavioural intention

The concept of perceived image is both simple yet inherently complex and intangible, as noted by Keller et al. (2011), reflecting individuals' views and ideas concerning an object, a notion long emphasized in marketing research since the 1950s (Song et al., 2019). Defined by Giesen and Hallmann (2018) within the marketing literature, perceived image encompasses individuals' overall impressions of a digital wallet service provider in the context of customer service and cybernetic payment networks, including factors such as brand identity, credibility, and reputation. As elucidated by Kotler (1997) and Bullmore (1984), perceived image shapes individuals' attitudes, perceptions, emotions, and behaviors associated with a brand's identity, significantly influencing consumer decision-making and trust, as highlighted by Biswas et al. (2023) and Khalid (2021). The tri-component model by Schiffmann et al. (2010) further illustrates how the conative component influences actual behavior based on emotive and cognitive components, contributing to the formation of an image, a notion reinforced by Giesen

and Hallmann (2018) in the context of cybernetic payment network systems. Additionally, Vos (1992) underscores the varied thoughts and feelings an image can evoke in individuals' minds, highlighting its profound impact on perceptions and behaviors. Therefore, understanding perceived image within the framework of HCI theory is crucial for comprehending user attitudes, behaviors, and trust in cybernetic payment networks, aligning with the overarching goal of optimizing user interactions with technology.

Moreover, studies highlighted that perceived image reduces consumers' risk perception and enhances the degree of trust (Yu et al., 2021). Besides, earlier studies conducted in various contexts, including airlines, apparel, restaurant, and hotel, highlighted that consumers' willingness to make purchasing decisions are more likely to be made if the brand has a favourable image (Yu et al., 2021; Lien et al., 2015). Hence, based on the above discussions, we argue that users' perceived image will affect users' trust and behavioural intention to adopt cybernetic payment network.

Hypothesis 5: Perceived image has a positive impact on perceived trust in cybernetic payment network services

Hypothesis 6: Perceived image has a direct influence on users' inclinations towards using cybernetic payment network services

2.5. Relationship between perceived trust and behavioural intention

Trust in cybernetic payment networks is deeply rooted in Human-Computer Interaction (HCI) theory, particularly in understanding user perceptions and behaviors towards technology adoption. Trust, as defined by Muangmee et al. (2021), represents an individual's faith and belief in a specific technology, with perceived trust serving as a key determinant of behavioral intentions regarding technology adoption. In the context of cybernetic payment networks, trust can be conceptualized as users' attitudes towards privacy and security-related concerns, as defined by Srivastava and Vishnani (2021). Given that these services often require users to disclose personal or financial information, privacy and security emerge as crucial considerations for user trust, as highlighted by Ashrafi et al. (2022). This underscores the importance of service providers in dedicating significant efforts to establishing and maintaining user trust, as emphasized by Chotigo and Kadono (2021). Furthermore, user expectations for a smooth transaction facility and privacy protection, preventing misuse or unauthorized sharing of data, align with HCI's focus on usability and user-centered design principles, as noted by Chellappa and Pavlou (2002). Therefore, we posit that considering trust as a fundamental determinant of user attitudes and behaviors in the context of cybernetic payment networks aligns with HCI's overarching goal of optimizing user interactions with technology to enhance usability, satisfaction, and technology acceptance.

Earlier studies conducted by Liébana-Cabanillas et al. (2017) indicated trust's crucial effect on the acceptability of m-commerce. Besides, Shin (2009) found that privacy and security were vital in determining the inclinations towards users' usage of novel technologies. Additionally, prior research has demonstrated that trust significantly impacts customers' behavioural intention to adopt particular products or brands, particularly in internet-based environments (Zhang et al., 2022; To et al., 2021; Poromatikul et al., 2020; Tzavlopoulos et al., 2019). Moreover, for M-banking, banks usually try to establish relationships by gaining customers' trust through face-to-face communication and off-line transactions (Shankar et al., 2022). Hence, trust is also expected to drive customers' cybernetic payment network services positively.

Hypothesis 7: Perceived trust positively influences behavioural intention to use cybernetic payment network services

2.6. Mediating effect of perceived trust

A firm's relationship with its customers is based on the foundation of trust (Singh and Sinha, 2020; Alrawad et al., 2023). Therefore, customers who trust the product or services are more likely to purchase

them (Kilani et al., 2023). Besides, consumers' perception of quality is multidimensional and includes functional and technical dimensions (Dandis et al., 2021; Parasuraman et al., 1988). Earlier studies have examined the relationship between perceived trust and quality and highlighted that improved quality could enhance consumers' trust (Qalati et al., 2021; Konuk, 2018). On the other hand, prior studies in the field of m-payment have shown that trust levels significantly affect users' behavioural intentions (Park et al., 2019; Singh and Sinha, 2020). Hence, we hypothesise that user's perception of the quality of the Cybernetic payment network services will impact users' trust, which in turn will affect users' behavioural intention for using cybernetic payment network services.

Hypothesis 8a: The association between behavioural intention for using cybernetic payment network services and perceived quality is positively mediated by perceived trust

Consumers' perceptions of a system's performance are called "system quality" (DeLone and McLean, 2003). According to Zhou (2011), system quality is a vital dimension affecting users' trust. Furthermore, earlier studies have shown that system quality augments consumers' trust level (Li and Xue, 2021; Mailizar et al., 2021). Moreover, various fields indicate that system quality strengthens customers' perceived trust and behavioural inclination to adopt novel technologies (Bilal et al., 2022; Mailizar et al., 2021). Therefore, we anticipate that system quality positively influences users' trust level, affecting consumers' willingness to use Cybernetic payment network services. In other words, perceived trust will positively mediate the relationship between system quality and users' willingness to adopt cybernetic payment network services.

Hypothesis 8b: The association of system quality and behavioural intention to use cybernetic payment network services is positively mediated by users' perception of trust

Users' beliefs, perceptions, emotions, and attitudes are mirrored in the perceived image of a product. Prior literature has shown that perceived image is one of the critical determinants of users' trust since the image that a firm has in the minds of the consumers significantly impacts their buying decisions. Additionally, Amin et al. (2013) highlighted that a firm's image and consumers' level of trust are connected. Moreover, Purwanto et al.'s (2020) study in the context of m-banking highlighted that perceived trust mediated the relationship between image and loyalty. Furthermore, Sultan and Wong (2019) reported that users' perception of trust mediated the relationship between brand trust and users' adoption intention. Hence, we argue that perceived image will positively impact users' willingness to adopt cybernetic payment network via perceived trust. Thus, the following hypothesis is postulated in light of the above discussion.

Hypothesis 8c: The association between perceived image and behavioural intention to use cybernetic payment network services is positively mediated by users' perception of trust

The research framework is developed based on above literature review and hypotheses which illustrated in Fig. 1.

3. Methodology

The present study applied a quantitative research approach to evaluate the users' trust and adoption intention of cybernetic payment network services in an emerging economy. The sampling technique used for this study is the purposive sampling technique to determine the influence of perceived quality, system quality, image, and trust on the adoption intention of cybernetic payment network services. The rationale behind using the purposive sampling technique is that it is an effective sampling strategy that can be applied to a wide range of research scenarios. It has several advantages, such as its relevancy, efficiency, depth of insight, adaptability, ethical concerns, and resource management. In addition, we used a self-administered survey questionnaire for data extraction from the participants who had experienced online banking services in Bangladesh.

We used 15 items to measure five research variables in the survey

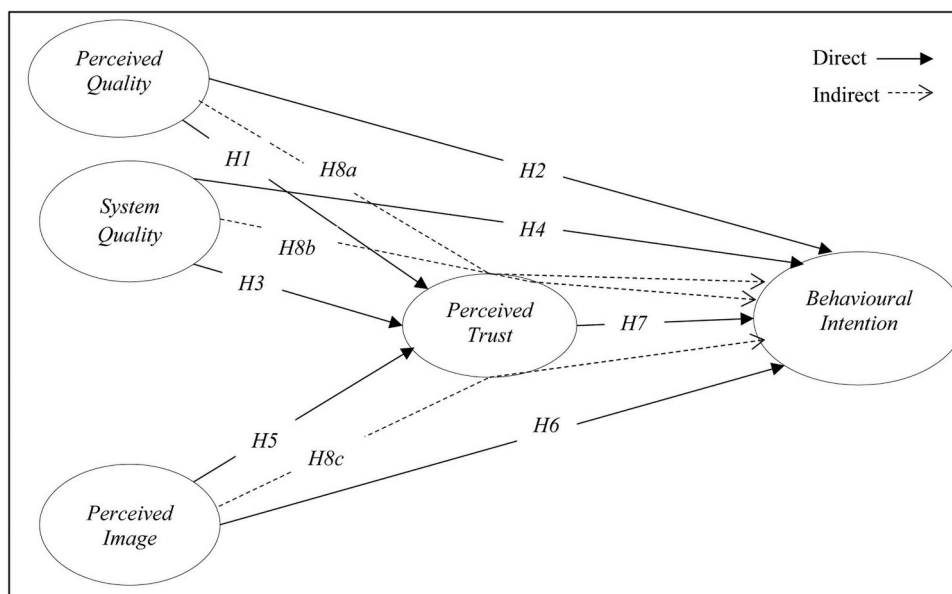


Fig. 1. Research Framework with Hypotheses. Source: Author's own creation.

questionnaire (see Appendix A). These items were adapted from the previous studies based on the relevance to the research objective, validity and reliability of the original instruments, ease of implementation, and time and resource constraints. By carefully selecting and adapting an existing instrument, the present study can be enhanced in terms of rigor and relevance within the specific research context. The first research variable is perceived quality, consisting of three items focused on prompt, professional and dependable services. These three items were adapted from Konuk (2018). The second research variable is system quality which pertains to three items: cybernetic payment network's visual attractiveness, ease of navigation, and text-graphics loading time. These items are adapted from Pham et al. (2019). The third research variable is perceived image, consisting of three items related to well-knowingness, good image, and reputation of honesty. These three items are adapted from Lien et al. (2015). The fourth research variable is perceived trust, which contains three items: reliability, transaction safety, and keep promises. These items are adapted from Singh and Sinha (2020). The fifth research variable is the behavioural intention to use cybernetic payment network, which consists of three items: future cybernetic payment network services usage intention, using cybernetic payment network as a transaction method whenever needed, and another item related to switching to another payment method other than cybernetic payment network services. These three items are adapted from Gupta et al. (2020) and Singh and Sinha (2020). All research variables are measured using a five-point Likert scale where 5 indicated strong agree while 1 denoted strongly disagree. The survey questionnaire has three stages of development and validation. In the first stage, the questionnaire items were chosen from previous studies based on their relevance and context. In the second stage, a pre-test was conducted to validate the content of the research instruments. In the third stage, a pilot survey was conducted to confirm the reliability and validity of the research instruments before collecting final data.

The survey questionnaire was created via Google Forms, and the link to the questionnaire was shared with the targeted respondents through email, Whatsapp, and Messenger. After distributing the survey questionnaire, a polite reminder was given to the respondents who did not participate in the survey within three days. The population of the study is unknown and participants were selected from the banking service providers with cybernetic payment network facilities. The sample size for this study was determined using the "A-priori Sample Size Calculator for Structural Equation Models". Based on the calculations, a sample size

of at least 200 was recommended for the present study (Memon et al., 2020). We distributed 600 survey questionnaires to the respondents and received 324 valid responses (i.e., 54 % response rate). The present study collected respondents' data anonymously without revealing their identities. It also employed indirect measures and confidentiality to obtain responses from the respondents. These initiatives help mitigate social-desirability bias. After collecting data, we preliminary analysed the data screening process, treatment for missing values and outliers, and normality to ensure that the data were free from possible statistical errors. In this study, the outliers were determined by Z-score (> 3) and based on the statistical analysis no observations (responses) Z-score were above 3. On the other hand, normality was determined by skewness and kurtosis. The results of data analysis indicate that the skewness value of all variables' items was less than 3, whereas kurtosis was less than 5.

In addition, this study determined the non-response error based on calculation of the response rate (54 % response rate) and imputation techniques (replaced missing value with mean). On the other hand, it also addressed the common method bias based on confirmatory factor analysis (CFA), common latent factor, and Harman's single-factor test. This study evaluate the constructs' internal consistency, reliability, and validity, based on construct validity, convergent validity, and discriminant validity using SmartPLS-4. We used the partial least squares structural equation modeling (PLS-SEM) to test the research model and hypotheses.

4. Results

4.1. Reliability and validity of measurement model

The measurement model in this study was chosen based on construct reliability and validity. Internal consistency and reliability of individual study variables were used to assess construct reliability. Cronbach's alpha, composite reliability (CR), and rho_A should be 0.70 or higher to confirm reliability and internal consistency (Hair et al., 2017). Cronbach's alpha, CR, and rho_A values for perceived quality, system quality, perceived image, perceived trust, and behavioural intention all met the minimum needed value of 0.70. As a result, it can verify that all research variables are reliable and consistent (Hair et al., 2020).

The validity of the constructs was also tested in this study using three different tests: convergent validity, construct validity, and discriminant

validity. The values of outer loadings and the average variance extracted (AVE) were used to figure out both convergent validity and construct validity. To meet the requirements for convergent and construct validity, the outer loading should be at least 0.70 and the average variance extracted (AVE) value should be at least 0.50 (Hair et al., 2020). The results of the measurement model show that both the outer loadings and the AVE values were above 0.7 and 0.5, respectively (see Table 1). This proves that the study constructs are valid (convergent and construct).

Furthermore, discriminant validity was investigated to establish the variable's reflection and the most solid connections with its indications. To assess discriminant validity, the Heterotrait-Monotrait Ratio (HTMT) test was used. According to the discriminant validity results, all construct values showed higher significant loadings than other constructs within their respective underlying constructs (see Table 2). As a result, the discriminant validity results are appropriate for this investigation.

4.2. Evaluation of structural model

The study tested the hypothesised research framework using the PLS-SEM method after confirming the reliability and validity of the constructs. To measure the hypothesised research model, the analysis used the bootstrapping approach to determine the significance of path coefficients (Henseler, 2018). The findings of the SEM tests are illustrated in Fig. 2 and Tables 3, 4, and 5.

The results of SEM analysis indicates that perceived trust has significant relationship with perceived quality ($\beta = 0.406$, $t = 5.668$, $p\text{-value} = 0.001$), system quality ($\beta = 0.214$, $t = 2.448$, $p\text{-value} = 0.015$) and perceived image ($\beta = 0.311$, $t = 3.824$, $p\text{-value} = 0.000$). The SEM results also indicate that behavioural intention has significant relationship with system quality ($\beta = 0.448$, $t = 3.771$, $p\text{-value} = 0.001$) and perceived trust ($\beta = 0.375$, $t = 3.535$, $p\text{-value} = 0.000$). However, perceived quality ($\beta = -0.141$, $t = 0.925$, $p\text{-value} = 0.355$) and perceived image ($\beta = 0.064$, $t = 0.475$, $p\text{-value} = 0.635$) do not have significant impact on behavioural intention to use Cybernetic payment network services.

Based on the above coefficient results, it can be concluded that perceived quality, system quality, and image directly influence the perceived trust in Cybernetic payment network services. Similarly, system quality and perceived trust have positive and significant relationships with the behavioural intention to use Cybernetic payment network services. As results, hypothesis 1, 3, 4, 5 and 7 (H1, H3, H4, H5 and H7) are supported at 5 % ($p < 0.05$) significant level (see Table 3). Though perceived quality and image significantly influence perceived trust, they do not have direct and significant effects on behavioural intention to use Cybernetic payment network services. Thus, hypothesis

Table 1
Construct Validity of the Measurement Model.

Variable	Item	Outer Loading	Cronbach Alpha	rho_A	Composite Reliability	AVE
Perceived quality	PQ1	0.848	0.760	0.767	0.862	0.676
	PQ2	0.836				
	PQ3	0.781				
System quality	SQ1	0.844	0.768	0.774	0.865	0.682
	SQ2	0.836				
	SQ3	0.797				
Perceived image	PI1	0.795	0.799	0.820	0.881	0.711
	PI2	0.862				
	PI3	0.871				
Perceived trust	PT1	0.829	0.812	0.831	0.888	0.727
	PT2	0.818				
	PT3	0.907				
Behavioural intention	BI1	0.876	0.766	0.778	0.865	0.681
	BI2	0.767				
	BI3	0.829				

Source: Author's own creation

Table 2
Results of Heterotrait-Monotrait Ratio (HTMT).

Variable	Behavioural intention	Perceived image	Perceived quality	Perceived trust	System quality
Behavioural intention					
Perceived image	0.590				
Perceived quality	0.553	0.649			
Perceived trust	0.741	0.769	0.774		
System quality	0.813	0.653	0.803	0.780	

Source: Author's own creation

2 and 6 (H2 and H6) are not supported at 5 % ($p < 0.05$) significant level (see Table 3).

Table 4 illustrates the indirect relationships of the coefficient paths. Based on the results of PLS-SEM it was observed that perceived trust fully mediates on the relationship between perceived quality and behavioural intention to use Cybernetic payment network service ($\beta = 0.152$, $t = 2.723$, $p\text{-value} = 0.007$), perceived image and behavioural intention ($\beta = 0.117$, $t = 2.909$, $p\text{-value} = 0.004$). On the other hand, the perceived trust partially mediates the relationship between system quality and behavioural intention to use Cybernetic payment network services ($\beta = 0.080$, $t = 1.980$, $p\text{-value} = 0.048$). Thus, it can be remarked that hypotheses 8a, 8b, and 8c (H8a, H8b and H8c) are supported at a 5 % ($p < 0.05$) significant level.

The analysis of the PLS-SEM results also shows that the path coefficients are consistent with the data from the investigation. According to the PLS-SEM results, perceived trust is explained by perceived quality, system quality, and perceived image at 61.5 %. Perceived quality, system quality, image, and trust, on the other hand, explain 47.6 % of behavioural intention. The study also used Stone-Geisser's value to investigate the predictive importance of endogenous variables (perceived trust and behavioural intention). The bootstrapping results show that perceived trust has a predictive relevance (value) of 0.434 and behavioural intention has a predictive relevance (value) of 0.287, showing that the study model has predictive relevance. In addition, based on the results of f-square values it was observed that perceived trust has a large effect, whereas, behavioural intention has a medium effect on cybernetic payment network services in an emerging country (see Table 5).

In this study, we employed Hair et al. (2020) technique to evaluate the practical relevance of our model by examining its predicted accuracy on separate samples. To achieve this objective, we performed Partial Least Squares (PLS) regression analysis on two exogenous variables (perceived trust and behavioural intention) consisting of six items. At the beginning, it was noted that the Q^2 values of the Partial Least Squares (PLS) model, as presented in Table 6, exceeded the threshold of 0. This suggests that the prediction errors produced by our Partial Least Squares (PLS) model are comparatively smaller as compared to relying just on mean values. Therefore, the predictive performance of our Partial Least Squares (PLS) model is superior, as Hair et al. (2020) emphasised.

Subsequently, a comparison was made between the root mean squared error (RMSE) values derived from the Partial Least Squares (PLS-SEM) analysis and those obtained from a linear regression (LM) model. The LM model was employed to predict each endogenous indicator by regressing all the exogenous indicators. The results showed that our Partial Least Squares (PLS) model had fewer prediction errors for all indicators, which is theoretically logical given the hypotheses we put forward. Therefore, according to the findings of Hair et al. (2020), our model demonstrates a moderate degree of predictive efficiency.

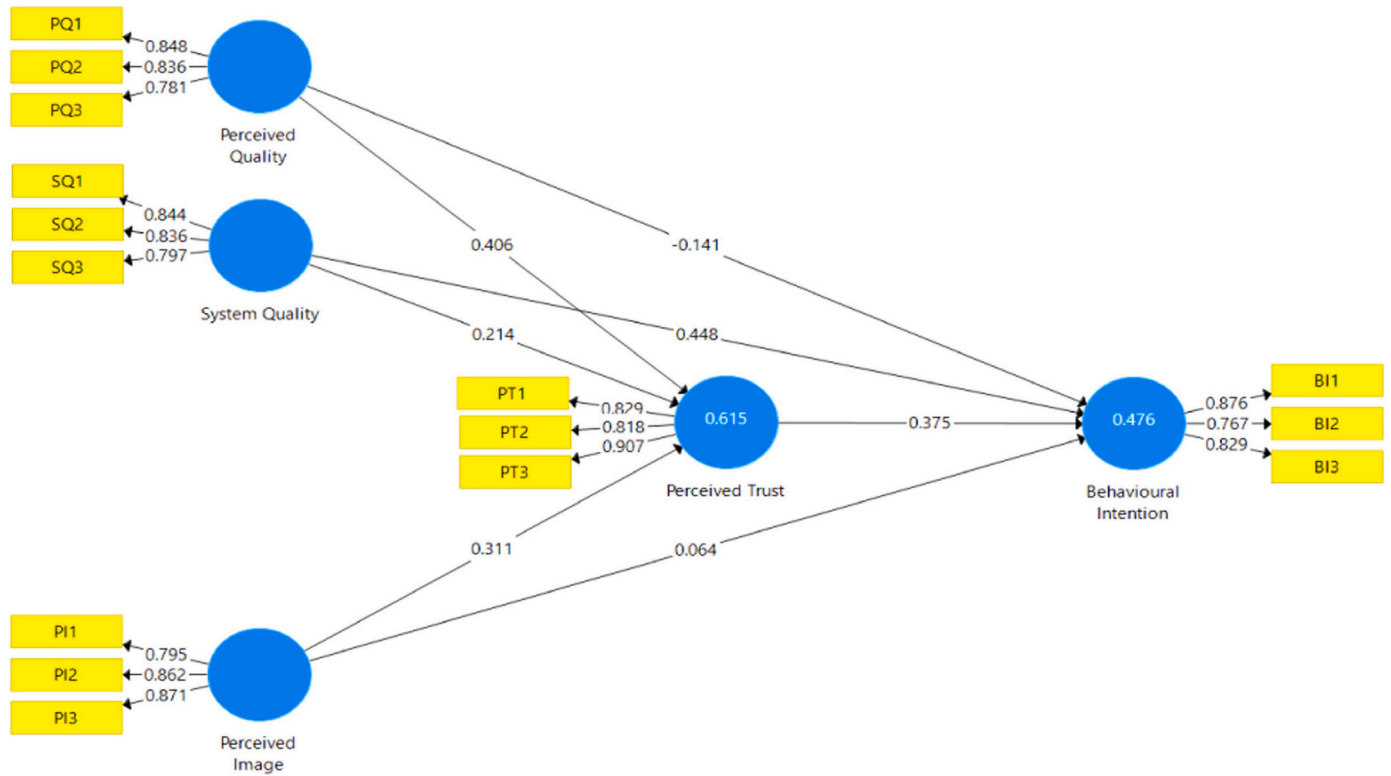


Fig. 2. Output of PLS-SEM. Source: Author’s own creation.

Table 3
Hypothesised Path Coefficients.

Hypothesised Path Relationships	Coefficient (β)	t-value	p-value	Remarks
H1 Perceived Quality → Perceived Trust	0.406	5.668	0.000	Supported
H2 Perceived quality → Behavioural Intention	-0.141	0.925	0.355	Not Supported
H3 System Quality → Perceived Trust	0.214	2.448	0.015	Supported
H4 System Quality → Behavioural Intention	0.448	3.771	0.000	Supported
H5 Perceived image → Perceived Trust	0.311	3.824	0.000	Supported
H6 Perceived image → Behavioural Intention	0.064	0.475	0.635	Not Supported
H7 Perceived Trust → Behavioural Intention	0.375	3.535	0.000	Supported

Source: Author’s own creation

Table 4
Results of Specific Indirect Effects.

Hypothesis	Specific Indirect Effects	Coefficient (β)	t-value	p-value	Support
H8a	Perceived quality → Perceived Trust → Behavioural Intention	0.152	2.723	0.007	Full
H8b	System Quality → Perceived Trust → Behavioural Intention	0.080	1.980	0.048	Partial
H8c	Perceived image → Perceived trust → Behavioural Intention	0.117	2.909	0.004	Full

Source: Author’s own creation

Table 5
Values of R Square and predictive relevance.

Variable	R ²	Adjusted R ²	Predictive relevance (Q ²)	Stone–Geisser indicator (f ²)	Effect size
Behavioural Intention	0.476	0.454	0.287	0.316	Medium
Perceived Trust	0.615	0.603	0.434	0.534	Large

Source: Author’s own creation

Note: 0.02, 0.15 and 0.35 are considered small, medium and large effects, respectively

Table 6
Results of predictive power using PLS predict.

Variable	Items	Q ² predict	PLS-SEM	LM
			RMSE	RMSE
Perceived trust	PT1	0.521	0.854	0.868
	PT2	0.434	0.826	0.832
	PT3	0.587	0.931	0.943
Behavioural intention	BI1	0.453	0.867	0.879
	BI2	0.389	0.744	0.763
	BI3	0.458	0.826	0.837

Source: Author’s own creation

5. Discussion

The findings of our study revealed that perceived quality significantly impacted perceived trust but not behavioral intention. These findings contrasts with the prior findings of Muskat et al. (2019), Tumaku et al. (2023) and Ashrafi (2024) and is consistent with the findings of Qalati et al. (2021). One plausible explanation behind the findings could be that although participants perceive the cybernetic

payment network's quality positively, they may not see a clear advantage over existing methods. Despite this positive perception leading to increased trust, factors such as perceived ease of use, risk perception, or satisfaction with current methods may outweigh the influence of quality on behavioral intention. Therefore, the absence of a compelling value proposition or clear superiority might limit participants' willingness to adopt the new system. The findings of our study reveal a significant impact of system quality on both perceived trust and behavioral intention to adopt the cybernetic payment network. One plausible explanation for these results could be that participants perceive system quality as a reliable indicator of the network's competence and performance, leading to increased trust in its ability to meet their payment needs. This trust, in turn, fosters a stronger intention to adopt the system, as users feel confident in its reliability and effectiveness. Additionally, higher perceived quality may signal greater benefits and advantages associated with the cybernetic payment network, motivating participants to embrace it for their payment transactions. Moreover, the positive correlation between system quality, trust, and behavioral intention may reflect participants' belief in the network's value proposition and their confidence in its ability to deliver a seamless payment experience. These findings are in line with the findings of Qalati et al. (2021), Bilal et al. (2022) and Mailizar et al. (2021).

The findings of our study indicate that perceived image significantly influences perceived trust in the cybernetic payment network but does not have a direct impact on behavioral intention to adopt. These findings are consistent with the findings of Khalid (2021), Yu et al. (2021) and contrast with the findings of Lien et al. (2015). An explanation for this discrepancy could be that participants associate the network's image with qualities such as reliability, credibility, and integrity, leading to heightened trust in its capabilities. However, when it comes to actual adoption decisions, participants may prioritize practical considerations such as the network's usefulness and ease of use over its perceived image. Additionally, despite trusting the network based on its positive image, participants may still harbor concerns or perceived risks associated with adopting new technology, which could temper their intention to adopt. Furthermore, the influence of social factors, personal experiences, and the perceived utility of alternative payment methods may outweigh the impact of image perception on behavioral intention. Our findings reveal a significant relationship between perceived trust and behavioral intention to adopt the cybernetic payment network. An explanation for this association could be that participants perceive trust in the network as a critical factor in reducing perceived risks and uncertainties associated with adopting new technology. Higher levels of trust may signal confidence in the system's reliability, security, and performance, thereby increasing individuals' intention to adopt it for their payment transactions. Moreover, positive user experiences, social influence, and the perceived benefits of using the network may contribute to higher levels of trust among participants, further reinforcing their intention to adopt. These findings underscore the importance of fostering trust and confidence in new technology to facilitate successful adoption and highlight the multifaceted nature of factors influencing individuals' behavioral intentions in adopting innovative payment solutions. This finding is consistent with findings of Zhang et al. (2022), To et al. (2021), and Poromatikul et al. (2020).

The full mediation of perceived trust between perceived quality and behavioral intention suggests that trust serves as the primary mechanism through which perceived quality influences the intention to adopt the cybernetic payment network. Participants likely rely on their trust in the system's reliability, security, and performance, which is shaped by their perception of its quality, to form their intention to adopt. Trust may act as a confidence builder, reducing perceived risks associated with adopting new technology and amplifying perceived benefits.

However, the partial mediation of perceived trust between system quality and behavioral intention suggests that while trust plays a significant role, other factors also contribute to the relationship. Additionally, besides perceived trust, other variables like perceived

usefulness, perceived ease of use, or social influence may also mediate the relationship. The decision to adopt a new technology like the cybernetic payment network is likely multifaceted, involving considerations of perceived benefits, risks, and personal experiences. While perceived quality may directly influence behavioral intention, trust acts as a complementary factor. Moreover, participants may still consider perceived risks associated with adopting new technology, which could temper the impact of trust on behavioral intention, resulting in partial mediation. The full mediation of perceived trust between perceived image and behavioral intention implies that trust is the primary mechanism through which perceived image influences the intention to adopt the cybernetic payment network. Participants likely perceive the network's image as indicative of its reliability, credibility, and integrity, leading to heightened trust in the system. Positive associations with the network's image may instill confidence in its trustworthiness and effectiveness, thereby strengthening participants' intention to adopt it for their payment needs. Moreover, social influences, risk reduction, and alignment with perceived benefits may further reinforce the relationship between perceived image and trust.

6. Implications

6.1. Theoretical implications

Our study offers three significant theoretical contributions to the existing literature on Cybernetic payment networks. Firstly, while prior research has emphasized the importance of perceived trust in influencing users' attitudes and intentions towards adopting such networks, limited attention has been paid to understanding the mediating role of trust. By investigating the mediating influence of trust on users' intention to adopt Cybernetic payment networks, this study fills a gap in the literature, providing deeper insights into the underlying mechanisms driving adoption behavior. Secondly, previous studies have predominantly focused on the impacts of factors like perceived ease of use, usefulness, and social influence on adoption intention, neglecting the influence of users' perceptions of Cybernetic payment network quality, image, and system characteristics. This study extends theoretical understanding by integrating the effects of perceived quality, system quality, and perceived image, thereby enriching the theoretical depth of adoption behavior models in the context of Cybernetic payment networks. Lastly, the majority of research on Cybernetic payment network adoption behavior has been conducted in developed countries, leaving a gap in understanding adoption dynamics in emerging economies. By examining users' intention to adopt Cybernetic payment networks in the context of an emerging economy like Bangladesh, this study contributes to bridging this gap, offering valuable insights that can inform marketers and policymakers on strategies to promote adoption rates in similar contexts.

6.2. Managerial implications

This study's results provide various practical and managerial implications. The study's findings suggest that developing perceived trust is critical for accelerating Cybernetic payment network adoption in a developing country like Bangladesh. Trust plays a critical mediating role in all underlying determinants of usage or behavioural intentions, whether wholly or partially. It explains that operators and stakeholders should prioritise trust-building measures to improve the Cybernetic payment network service further. They should focus more on the service's reliability and ability to keep promises in this context. Additionally, customers should feel secure when utilising Cybernetic payment network services. In addition to private usage, many governments seek to implement Cybernetic payment network for government transfers (e.g., The Primary Education Stipend Project, which subsidises children's educational participation from low-income families). Hence, Cybernetic payment network service providers can capitalise on this opportunity by

improving their services based on the study's findings.

Cybernetic payment network is one of the innovative options launched by banks and service providers that aim to look for faster adoption rates. The findings of this study showed the factors: perceived quality, system quality, and perceived image, which significantly affect users' trust and behavioural intention to adopt Cybernetic payment network services. Hence, this study provides meaningful insights to the managers and policymakers of the banks to develop effective strategies to sustain innovation and focus on the components that drive and expedite users' adoption intention.

System quality was a significant factor in ensuring users' trust. Therefore, Cybernetic payment network services may integrate high-quality systems for users' ease of access, error-free transactions, quick transfer facility, higher security, and more accessible interface to navigate, which may catalyse users' trust and behavioural intention to adopt Cybernetic payment network services. Furthermore, the findings explored the causal association between perceived quality and users' trust and intention for Cybernetic payment network adoption, implying that a higher level of quality perception mitigates users' risk perception, ultimately improving and strengthening users' trust (Kilani et al., 2023). Hence, to improve consumers' perception of quality, banks may provide access to most services online to provide more convenience-based facilities. Additionally, the number of failed transactions should be minimised, and consumers should be provided with accurate and error-free documentation of their successful and failed transactions to minimise their uncertainty levels (Jebarajakirthy and Shankar, 2021).

Moreover, service providers should ensure that users have access to a comprehensive range of services from Cybernetic payment network platforms. This approach can enhance users' perception of quality based on convenience and accessibility, as they can conveniently access a variety of services within the Cybernetic payment network ecosystem. In addition, to provide customers with a post-service facility, banks should ensure that they get customer support 24x7 and provide users with an omnichannel customer experience. This study also highlighted trust as a significant predictor that drives customers' behavioural intention to adopt Cybernetic payment network services, implying that managers and policymakers should focus more on generating users' trust in their Cybernetic payment network services to ensure the adoption of Cybernetic payment network services. The findings provide managers and policymakers of banks with robust and meaningful insights into why the trust development strategy is crucial to reducing risk and fostering customers' adoption intention. In addition, the banks may ensure influential clients' complaint management systems and transparency so that customers can track the status of the complaints online (Jebarajakirthy and Shankar, 2021).

Furthermore, this study on customers' trust and behavioural intentions towards Cybernetic payment network services in Bangladesh has significant implications for government policymaking. By analyzing factors such as perceived quality, system quality, and perceived image, the study sheds light on the readiness of the country's digital payment infrastructure and identifies areas for improvement. This understanding can help policymakers in their efforts to enhance financial inclusion by ensuring that digital payment systems are accessible and trusted by all segments of society. Moreover, insights into the pivotal role of trust in driving adoption highlight the importance of policies and regulations aimed at building trust in digital payment systems. Measures such as enhancing cybersecurity, ensuring data privacy, and providing consumer protection can help foster greater trust among users. Additionally, the study's findings offer a basis for formulating effective strategies to sustain innovation and enhance adoption rates in the digital payment ecosystem. By leveraging these insights, government policymakers can modernize the country's payment infrastructure, promote economic development, and accelerate the transition towards a digital economy in Bangladesh.

7. Conclusion

The emergence of cybernetic payment network services presents a transformative opportunity for the banking sector in developing nations like Bangladesh. In light of rapid technological advancements, there is an increasing imperative for businesses and financial institutions to adopt new technologies to remain competitive. Cybernetic payment networks hold significant potential for expediting financial transactions and fostering economic growth by enhancing convenience. However, to ensure inclusive growth, it is imperative that the benefits of cybernetic payment networks extend to all segments of society, including those in remote and underserved regions. This necessitates collaborative efforts among government entities, telecom service providers, and device manufacturers to facilitate widespread access to these services across diverse demographic and geographic contexts. Moreover, raising awareness and disseminating knowledge about cybernetic payment networks is crucial to encouraging broader adoption among the populace. The study's findings underscore the importance of system quality in influencing users' behavioral intentions and trust perceptions in the context of cybernetic payment networks. Furthermore, perceived image and quality are found to play significant roles in shaping perceived trust, thereby indirectly impacting behavioral intentions. These insights contribute to our understanding of the factors driving user adoption and trust in cybernetic payment networks, with implications for policymakers, financial institutions, and technology providers seeking to promote financial inclusion and technological innovation in emerging markets. The research findings are in accordance with the research objectives of examining the influence of perceived quality, system quality, and perceived image on users' trust and behavioral intentions regarding cybernetic payment networks. The novelty of the research findings lies in their exploration of these factors within the specific context of developing nations like Bangladesh, shedding light on the unique opportunities and challenges faced in promoting financial inclusion and technological advancement in such regions.

While this study provides valuable insights into customers' trust and behavioral intentions regarding the use of cybernetic payment network services in Bangladesh, several limitations should be acknowledged. Firstly, the study focused solely on customers in Bangladesh, limiting the generalizability of the findings to other geographic regions or cultural contexts. Moreover, the use of cross-sectional data restricts the ability to establish causality between the variables examined. Future research could address these limitations by employing more diverse and robust sampling methods, including longitudinal studies to explore causal relationships over time and across different populations. Secondly, while the study collected data from 324 respondents in Bangladesh, the sample size and geographic focus may limit the broader applicability of the findings. Future research could consider expanding the sample size and including participants from a more diverse range of countries to enhance the robustness and generalizability of the results.

Building on the findings of this study, several avenues for future research emerge. Firstly, future studies could adopt more diverse and rigorous sampling methods to ensure greater representativeness of the sample and enhance the generalizability of the findings across different demographic groups and cultural contexts. Longitudinal studies could also be conducted to investigate the causal relationships between perceived quality, system quality, perceived image, trust, and behavioral intentions over time. Additionally, comparative studies across different emerging countries could provide insights into the unique factors influencing customers' trust and adoption of cybernetic payment network services in various socio-economic contexts. Furthermore, qualitative research approaches, such as interviews and focus groups, could offer deeper insights into customers' perceptions, attitudes, and behaviors regarding cybernetic payment networks, complementing the quantitative findings of this study. Overall, future research efforts should aim to provide a more comprehensive understanding of the factors driving customers' trust and adoption of cybernetic payment

network services, informing the development of effective strategies for promoting innovation and enhancing adoption rates in emerging markets.

Ethics

We hereby declare that this study was carried out using self-research funding. There isn't a research grant or funding associated with it.

Author contributions

Selim Ahmed was responsible for the study's conception and design, data collection and analysis, and paper writing.

Selim Ahmed and **Rubina Ahmed** carried out data analysis, made significant changes to the article, and participated in the study design.

Selim Ahmed and **Dewan Mehrab Ashrafi** provided support in gathering data, interpreting findings, and critically examining the work to identify significant intellectual elements.

Ezaz Ahmed and **Dewan Mehrab Ashrafi** offered feedback on data analysis, helped with the literature review, and made significant intellectual content revisions to the text.

Sanmugam Annamalah, **Rubina Ahmed**, and **Selim Ahmed** helped conceptualise the study, offered methodological advice, and critically edited the manuscript to ensure it was accurate from a scientific standpoint.

All authors read and approved the final work, and they accept responsibility for its integrity and accuracy.

Ethical statement

We affirm that all components of this research met the highest ethical

Appendix A. Research instruments of the study

Variable	Item code	Items	Source
Perceived quality	PQ1	Cybernetic payment network provides prompt services	Konuk (2018)
	PQ2	Cybernetic payment network provides professional services	
	PQ3	Cybernetic payment network provides dependable services	
System quality	SQ1	Cybernetic payment network is visually attractive	Pham et al. (2019)
	SQ2	Cybernetic payment network is easy to navigate	
	SQ3	Cybernetic payment network quickly loads all the text and graphics	
Perceived image	PI1	Cybernetic payment network is well-known	Lien et al. (2015)
	PI2	Cybernetic payment network has a good image	
	PI3	Cybernetic payment network has a reputation for being honest	
Perceived trust	PT1	Cybernetic payment network is reliable	Singh and Sinha (2020)
	PT2	Feel safe in my transactions with cybernetic payment network services	
	PT3	Cybernetic payment network keep its promises	
Behavioural intention	BI1	I will increase my use of cybernetic payment network services	Gupta et al. (2020); Singh and Sinha (2020)
	BI2	I will try to use the cybernetic payment network whenever I need to make a purchase	
	BI3	As long as the present service continues, I will not switch my cybernetic payment network services	

Source: Author's own creation

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standards.

Participants in this study gave informed consent, and their anonymity and confidentiality were scrupulously protected throughout the research procedure. Potential conflicts of interest have been disclosed and addressed accordingly.

All of the data included in this publication are accurate and have been collected, analysed, and presented with integrity. Any potential flaws or biases in the research have been disclosed openly.

We are dedicated to maintaining the integrity of scientific inquiry and preserving the welfare and rights of all participants in our research project."

CRedit authorship contribution statement

Sanmugam Annamalah: Writing – original draft, Conceptualization. **Dewan Mehrab Ashrafi:** Writing – review & editing, Writing – original draft, Data curation, Conceptualization. **Ezaz Ahmed:** Writing – original draft, Data curation, Conceptualization. **Rubina Ahmed:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Selim Ahmed:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

We declare that we have no financial or personal links with individuals or organisations that could unduly affect or bias the content of this work.

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