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Modelling Islamic Banking Technology Adoption in Malaysia: An Application of UTAUT2 with Islamic Financial Literacy as a Moderator

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Abstract

The adoption of technology within Islamic banking in Malaysia is critical for enhancing service efficiency and competitiveness. This study applies the Unified Theory of Acceptance and Use of Technology (UTAUT2) in combination with Islamic Financial Literacy (IFL) to examine the key drivers of technology adoption among Islamic banking customers. Data from 384 working adults were analysed using PLS-SEM. Results revealed that performance expectancy, compatibility, facilitating conditions, perceived risk, and IFL significantly predicted behavioural intention, whereas effort expectancy was not significant. IFL exerted a direct positive effect, without significantly moderating other predictors. Findings elucidate the instrumental and moral motivations underpinning adoption, providing implications for digital strategy aligned with Shariah principles.

Keywords: Islamic Banking, Technology Adoption, UTAUT2, Malaysia, Islamic Financial Literacy

Introduction

However, in the 20th century, revivals / Islamic activists/activists sought to define all interests as usury, to order Muslims to lend and borrow in "Islamic Banks" which avoided fixed rates. By the 21st century, this Islamic Banking movement had created "institutions of non-profit financial enterprises around the world". Loans are allowed in Islam if the interest paid is linked to the profit or loss earned from the investment. The concept of profit serves as a symbol in Islam, representing a standard division of profits, losses, and risks.

Overview of Islamic Banking in Malaysia

Islamic banking in Malaysia began in September 1963 when the Prospective Hajj Savings Corporation (PWSBH) was established. PWSBH was established as an institution for Muslims to cover the expenses of Hajj (pilgrimage to Mecca). In 1969, PWSBH merged with the Hajj

Affairs Office to form the Hajj Management and Tabung Board (now known as the Hajj Fund Board).

The first Islamic Bank in Malaysia was established in 1983. In 1993, commercial banks, merchant banks and finance companies were allowed to offer Islamic banking products and services under the Islamic Banking Scheme (IBS). However, these institutions are required to separate the funds and activities of Islamic banking transactions.

The list of banks in Malaysia offering Islamic products (updated in 2015) has grown to 16 banks. Apart from banks, other non-bank intermediaries offering shariah-based products are Malaysia Building Society Berhad (MBSB) and cooperatives registered under the Malaysian Cooperative Commission (SKM).

In Malaysia, the National Shariah Advisory Council, established at Bank Negara Malaysia (BNM), advises BNM on the Shariah aspects of the operations of these institutions, as well as their products and services. In 2006, Bank Negara Malaysia established the University's International Centre for Education in Islamic Finance (INCEIF) specifically to provide skilled, certified personnel for Islamic Finance in Malaysia. The university was established as part of the Malaysian Government's initiative to further strengthen the country's position as an international Islamic financial centre. It is the only university in the world that is entirely devoted to postgraduate studies in Islamic Finance.

Technology Adoption

Technology adoption has transformed the global banking sector, revolutionising how financial services are delivered. Understanding the factors influencing technology adoption behaviour is essential to facilitate the integration and utilisation of technology in Islamic banking. Several theories and models have been proposed to explain technology adoption, including the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a widely accepted model that integrates and extends various theories of technology adoption. UTAUT posits that four key determinants influence technology adoption behaviour: performance expectancy, effort expectancy, social influence, and facilitating conditions.

Performance Expectancy

Performance expectancy refers to an individual's perception of the benefits and advantages associated with using a particular technology. In the context of Islamic banking, customers' perceptions of technology's value-added benefits, such as convenience, accessibility, and improved service quality, can significantly influence their intention to adopt technology.

Effort Expectancy

Effort expectancy refers to the perceived ease of use and simplicity of technology. Islamic banking customers' perception of the ease of using technology, including user-friendly interfaces, clear instructions, and minimal complexity, can influence their willingness to adopt technology-driven banking services.

Perceived Risk

Perceived risk significantly influences customer trust and willingness to engage with Islamic banking technologies. High levels of perceived risk can deter adoption, while effective risk management strategies can enhance user confidence. Factors such as data security, privacy concerns, and compliance with Islamic principles contribute to perceived risk. Additionally, favourable regulatory environments and transparent communication can mitigate these fears, encouraging adoption.

Facilitating Conditions

Facilitating conditions refer to external factors that support or hinder the use of technology. These factors include the availability of necessary infrastructure, adequate resources, organisational support, and the compatibility of technology with existing systems and processes. The presence of facilitating conditions can ease the adoption process and enhance customers' intention to use technology in Islamic banking.

Literature Review

Islamic banking emphasises Shariah-compliant financial principles alongside ethical and social justice concerns. Conventional technology acceptance models, including UTAUT2, identify performance expectancy, effort expectancy, compatibility, facilitating conditions, and perceived risk as core antecedents of adoption. However, in Islamic finance contexts, Islamic financial literacy plays a crucial role by enhancing understanding of Shariah compliance and the ethical implications of technology use, necessitating its integration into adoption models.

Conducted on the determinants of technology adoption in the context of Islamic banking in Malaysia using the Unified Theory of Acceptance and Use of Technology (UTAUT). Scholars have recognised the importance of understanding the factors that influence technology adoption behaviour in Islamic banking, and numerous studies have been conducted during this period to investigate this area. UTAUT2 Literature synthesis: Researchers in their quest to understand individual technology acceptance and use have applied, integrated, and extended UTAUT2 across a variety of settings. These could be broadly grouped into six categories: 1) different types of users, 2) different types of organisations, 3) different types of technology, 4) different task types, 5) different times, and 6) different locations. The first group comprises multiple technological users across myriad settings, such as employees' use of IS theories for development and evaluation. Weber (2012) provides a systematic framework for both evaluating existing theories and developing new IS theories that align well with the overall aims and objectives of this research (i.e., to assess the robustness of the UTAUT2 theory and its usage patterns). The framework is already used to determine popular IS theories such as virtuality and knowledge in teams (Griffith et al., 2003) and UTAUT (Dwivedi et al., 2017, 2020; Rana et al., 2016, Rana et al., 2017a, Rana et al., 2017b; Venkatesh et al., 2003

Extended Multi-Level Framework– Mapping UTAUT2 Extensions

This study mapped UTAUT2 extensions and extended Venkatesh et al. (2016) 's multi-level framework of technology acceptance and use based on Weber's (2012) theory evaluation and a thorough analysis of Johns' (2006) context dimensions. The resultant model emerging from the literature synthesis of UTAUT2 extensions is depicted in Fig. 2. Five out of seven UTAUT2

exogenous constructs, i.e., PE, EE, PV, HM, and SI, are classified as individual beliefs in the multi-level framework model.

The simplified model is Technology acceptance research – Recommendations and future research directions. The extended Venkatesh et al. (2016) multi-level framework of technology acceptance and use, depicted in Fig. 2 and mapped with UTAUT2 extensions, can provide fruitful future research directions, as shown by the double arrows based on the Weber (2012) framework and the Johns (2006) context dimensions. The evaluation of UTAUT2 extensions parts using Weber (2012) revealed that the majority of the studies added novelty through the addition/deletion of constructs and/or new associations, focusing on the existing.

Unified Theory of Acceptance and Use of Technology (UTAUT)
The Unified Theory of Acceptance and Use of Technology (UTAUT) is a model that explains how individuals adopt and use new technologies. It identifies four key factors that influence technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy refers to the perceived usefulness of the technology, while effort expectancy refers to the perceived ease of use. Social influence includes peers and superiors, and facilitating conditions refer to the resources and support available for technology use. UTAUT is widely used in research and practice to understand and predict technology adoption and use. This paper explains the UTAUT model and its relevance to technology adoption in Islamic banking.

A study by Razali et al. (2013) examined the factors influencing the intention to adopt internet banking in Islamic banking using UTAUT. The research focused on the determinants of performance expectancy, effort expectancy, social influence, and facilitating conditions and their impact on customers' intention to adopt internet banking services in Islamic banks in Malaysia.

A research article by Ismail and Rahman (2014) investigated the determinants of mobile banking adoption in Islamic banking in Malaysia. The study applied UTAUT to examine the impact of performance expectancy, effort expectancy, social influence, and facilitating conditions on customers' intention to adopt mobile banking services in Islamic banks.

A study by Ismail and Yusoff (2015) examined the determinants of technology adoption in Islamic banking in Malaysia using the UTAUT model. The study focused on the factors of performance expectancy, effort expectancy, social influence, and facilitating conditions and examined their impact on customers' intention to adopt technology in Islamic banking. A research article by Razali et al. (2016) investigated the factors influencing the adoption of mobile banking in Islamic banking using the UTAUT model. The study examined the role of performance expectancy, effort expectancy, social influence, and facilitating conditions on customers' intention to adopt mobile banking services in Islamic banks in Malaysia.

A study by Al-Qatanani (2017) explored the factors influencing the adoption of Islamic banking in Saudi Arabia, including the role of technology adoption. The research applied the UTAUT framework to examine the impact of performance expectancy, effort expectancy, social

influence, and facilitating conditions on customers' intention to adopt technology in Islamic banking.

A research article by Islam and Ali (2018) investigated the adoption of mobile banking in the Islamic banking context of Bangladesh. The study incorporated UTAUT to examine the factors influencing customers' intention to adopt mobile banking services in Islamic banks. It explored the role of performance expectancy, effort expectancy, social influence, and facilitating conditions in technology adoption behaviour.

A study by Othman, Mustaffa, and Rosli (2019) examined the factors influencing the adoption of mobile banking in Islamic banking in Malaysia using UTAUT. The research focused on the determinants of performance expectancy, effort expectancy, social influence, and facilitating conditions and their impact on customers' intention to adopt mobile banking services.

A research article by Abdul Majid et al. (2020) investigated the factors influencing the adoption of online banking in Islamic banking in Malaysia. The study applied UTAUT to examine the impact of performance expectancy, effort expectancy, social influence, and facilitating conditions on customers' intention to adopt online banking services in Islamic banks.

Methodology

A quantitative survey was conducted among 400 working adults in Malaysia, with 384 valid responses after screening. A structured questionnaire measured UTAUT2 constructs and IFL. PLS-SEM was used to analyse the data and evaluate the measurement and structural models. Hypothesis testing included direct effects and IFL moderation on behavioural intention to adopt Islamic banking technology.

Results

The measurement models demonstrated strong reliability and validity. Structural model results indicated significant positive relationships between performance expectancy, compatibility, facilitating conditions, perceived risk, Islamic financial literacy, and behavioural intention. Contrary to expectations, effort expectancy was not significant. Moderation analysis revealed that IFL did not significantly moderate the relationships between UTAUT2 predictors and behavioural intention, but it did have a notable direct effect.

Discussion

Results confirm UTAUT2's applicability in Islamic banking, extended by IFL to include cognitive-ethical considerations. Performance expectancy includes both usability and Shariah compliance benefits. Compatibility reflects alignment with Islamic values, while facilitating conditions emphasise supportive infrastructure and governance. The anomalous positive link between perceived risk and intention might reflect a moral calculus unique to Islamic banking customers. IFL plays a pivotal role as a direct enabler rather than a contextual moderator, highlighting the importance of knowledge in adoption decisions.

Implications

Islamic finance institutions should invest in technology infrastructure, emphasise Shariah-compliant governance and transparency, and enhance customer education on Islamic

financial concepts to foster adoption. Digital platforms can integrate faith-centric features to increase compatibility with users' values. Policymakers can foster an innovation-friendly environment that balances technological advancement with Shariah compliance, thereby promoting inclusive finance.

Limitations

The cross-sectional nature limits causal interpretations. Self-report bias is a concern despite precautions. Perceived risk's multidimensionality was not dissected, possibly obscuring nuanced effects. The sample lacks representation of less-literate or digitally marginalised groups. Future studies should examine longitudinal data, dissect risk dimensions, and include psychosocial mediators and moderators, such as religiosity.

Conclusion

This study advances understanding of technology adoption in Islamic banking by combining UTAUT2 with Islamic financial literacy. Adoption intentions arise from practical utility and moral assurance provided by Shariah compliance and literacy. IFL serves as a cognitive and ethical catalyst directly influencing adoption readiness. These insights inform theoretical development and practical strategies for inclusive and ethical digital finance in Muslim contexts.

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