



Digital Mosques, Connected Community: Examining Technology Acceptance and Engagement in Kuching, Sarawak

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Abstract

Digital transformation is increasingly extending into community-based and religious institutions, where digital services can alter how information is communicated, activities are organised, and users interact with institutions. In mosque settings, however, the presence of digital technologies does not necessarily indicate that they are perceived as useful or translated into meaningful community participation. Recent studies have examined digital management systems for mosque programmes, emerging technologies for smart-mosque environments, and the relationship between technology and congregational engagement, but less attention has been given to the user perspective on digital mosque services and its relationship with community and youth engagement. This study therefore focuses on how community members and youth perceive digital services provided by mosques and how these perceptions relate to their engagement in mosque activities in Kuching, Sarawak. The study adopts a sequential explanatory mixed-method design. The quantitative phase will assess perceived usefulness, perceived ease of use, and engagement with mosque activities among respondents from selected mosques in Petra Jaya, Kuching. The qualitative phase will subsequently explore the reasons underlying the quantitative patterns through interviews with mosque committee members and youth representatives. The study is theoretically informed by the Technology Acceptance Model, while Islamic governance principles provide the institutional context for interpreting digital services in mosque management. The study is designed to provide empirical evidence on the user and community dimension of mosque digital transformation without assuming that digitalisation automatically produces greater participation. The findings are expected to clarify the conditions under which digital mosque services are perceived as useful and accessible and how these perceptions relate to community and youth engagement within the studied context.

Keywords: digital transformation; digital mosques services; youth engagement, community engagement, islamic governance

1.Introduction

Digital transformation has increasingly extended beyond commercial and public-sector organisations to institutions that provide social, educational, and community services. Religious institutions are part of this development because digital technologies can alter how information is communicated, programmes are organised, services are delivered, and communities participate in institutional activities. In the context of mosques, recent scholarship indicates that technology is being considered not only for religious communication but also for management, congregational engagement, and the development of more systematic community services. Abas et al. (2025), for example, examine mosque management through the combined perspectives of technology and congregational engagement, while Mohammed et al. (2024) review emerging technologies in smart-mosque development, particularly in relation to buildings, resources, security, energy efficiency, and user environments. These developments indicate that mosque digitalisation is increasingly concerned with institutional functions and user interaction rather than with the mere availability of digital platforms. The Malaysian context is relevant because national digital policy has framed digitalisation as a broad societal transformation rather than an issue confined to economic production. The Malaysia Digital Economy Blueprint identifies inclusive digital society, digital transformation, digital infrastructure, and a trusted digital environment among its national priorities (Ministry of Economy, 2021). More recently, Malaysia Digital 2030 has positioned digital adoption across government, industry, and society within the country's aspiration to become an inclusive and sustainable artificial intelligence (AI) nation by 2030 (MyDIGITAL, 2026). Within mosque administration, recent Malaysian research demonstrates that digital systems can support specific functions. Mat Jusoh et al. (2023) developed a conceptual basis for a web-based digital management



system for the ‘imarah’ mosque programme, including digital programme management, participant profiling, dissemination, and evaluation. Abas et al. (2025) similarly connect technology integration with congregational engagement, systematic programme management, and collaborative networks. The relevance of these studies is therefore not simply that mosques can adopt technology, but that digital services may become part of how mosque institutions organise their relationship with the communities they serve. The distinction between technological provision and user engagement is consequential. Existing studies demonstrate that digital systems can address particular administrative requirements, while smart-mosque research has examined technologies for building performance and operational management. Mohammed et al. (2024), based on a systematic literature review, found that the smart-mosque literature has concentrated substantially on emerging technologies associated with energy efficiency, intelligent buildings, resource management, security, and user comfort. Mat Jusoh et al. (2023) by contrast, focus on the requirements for a digital management system for ‘imarah’ mosque programmes. Abas et al. (2025) move closer to a community-oriented perspective by examining technology alongside congregational engagement. Taken together, these studies establish several components of mosque digitalisation, but they do not resolve a narrower user-level question: how community members and younger users perceive mosque digital services and whether those perceptions are related to engagement in mosque activities.

This distinction is particularly relevant in Kuching, Sarawak. This study identifies selected mosques in Petra Jaya as the empirical setting and proposes an investigation of digital services and community engagement within that setting. Based on observations, digital use in the selected context is concentrated mainly on social media announcements, digital financial reporting, online donations, and structured communication systems, that remain less developed. These local observations should be treated as study-context information to be established through the research rather than as generalised findings about all mosques in Kuching. The Sarawak setting is therefore scientifically relevant because it permits examination of whether patterns identified in other Malaysian contexts apply to a distinct local setting and, more specifically, whether users’ perceptions of digital services are associated with their participation in mosque activities. Against this background, the study focuses on the user dimension of mosque digital transformation. Apart from that, rather than assuming that digitalisation directly improves participation, the study examines perceived usefulness and perceived ease of use as technology-acceptance dimensions and considers their relationship with community and youth engagement. This focus is grounded in the Technology Acceptance Model (TAM), which provides a parsimonious explanation of how users’ beliefs about a technology can shape its acceptance and use (Davis, 1989). Islamic governance principles, particularly amanah, transparency, and accountability, are treated as an institutional context for interpreting the role of digital services in mosque administration rather than as additional statistical predictors unless they are explicitly operationalised in the final instrument.

The contribution of the study is consequently narrower and more empirically testable than a general claim that mosques require digital transformation. It seeks to establish how users perceive digital mosque services and how these perceptions are related to engagement in mosque activities, while the qualitative phase is used to explain the conditions underlying the observed quantitative relationships. Because this study connects technology acceptance with community and youth engagement in a mosque setting, it addresses a user-oriented dimension that complements existing work on digital programme management and smart-mosque technologies. The findings may inform mosque administrators and relevant Islamic authorities when considering which digital services are perceived as useful and accessible by users, although any transferability beyond the studied setting will require further empirical assessment.

2. Problem statement

The expansion of digital technologies has created opportunities for religious institutions to communicate with their communities through channels that extend beyond physical spaces. In mosque settings, digital services may support programme information, communication, participation, and administrative interaction. Malaysian studies already demonstrate that digital applications can be developed for mosque-related functions. Mat Jusoh et al. (2023) identified requirements for a digital management system for ‘imarah’ mosque programmes, while Abas et al. (2025) examined technology integration alongside congregational engagement and mosque social programmes. At the same time, Mohammed et al. (2024) show that smart-mosque research has also developed around technological applications for buildings and operational functions. The existence of these applications means that the central problem is no longer simply whether digital technologies can be introduced into mosque institutions. A more consequential issue concerns whether digital services are perceived by users as useful, accessible, and relevant to their interaction with mosque institutions. A digital platform may be available without becoming a meaningful channel for participation. Conversely, users who perceive digital services as useful and easy to use may be more inclined to incorporate them into their interaction with mosque activities. The distinction is important because institutional digitalisation involves both technological provision and user response. If the user dimension is not examined, decisions about digital services may



be based on administrative assumptions rather than evidence concerning how community members and younger users actually experience those services. The current research context in Kuching provides an opportunity to examine this issue empirically. The typical observations identify limited and fragmented ICT utilisation in selected mosque settings and describes digital activity as being concentrated mainly on social media announcements, with other potential functions such as digital donations, financial reporting, and structured communication less developed. These observations establish the practical motivation for the study, but they do not by themselves demonstrate how users evaluate existing or potential digital services. This creates a conceptual gap because a model intended to support community engagement should first be informed by evidence on how users perceive the digital services through which engagement is expected to occur. The problem addressed by this study is therefore the insufficient empirical understanding of the relationship between perceptions of mosque digital services and community and youth engagement in the Kuching context. Existing research has established the feasibility of digital programme management and the broader potential of smart-mosque technologies, but the user-level relationship between perceived digital-service characteristics and engagement remains less clearly established. Addressing this problem requires evidence that distinguishes the existence of digital services from users' evaluations of those services and then examines whether these evaluations correspond with engagement in mosque activities. Accordingly, the study focuses on one objective that is to examine how community members and youth perceive digital services provided by mosques and how these perceptions relate to their engagement in mosque activities in Kuching, Sarawak.

3. Research Gap

Three related gaps emerge from the recent literature. First, existing mosque digitalisation research has tended to examine specific technological or administrative applications. Mat Jusoh et al. (2023) focus on the needs and development of a digital management system for 'imarah' mosque programmes, while Mohammed et al. (2024) synthesise literature on emerging technologies for transforming mosques into smart buildings. These studies are important in establishing what digital technologies can support, but they do not primarily address how users evaluate digital mosque services as channels for community participation. Second, the literature has begun to connect technology with congregational engagement, but the user-level mechanism remains insufficiently specified. Abas et al. (2025) explicitly consider congregational engagement and technology within mosque management and social programmes. However, a focused examination of perceived usefulness and perceived ease of use as technology-acceptance dimensions provides a different analytical contribution because it asks whether users' beliefs about digital services are associated with their engagement rather than treating technology integration itself as evidence of engagement. This distinction matters for interpretation because the introduction of a technology and its acceptance by users are not equivalent outcomes. Third, there is a contextual gap concerning East Malaysia. The reviewed recent studies provide evidence from Malaysian mosque settings and from international smart-mosque literature, but the current evidence base does not establish how the user-level relationship between digital-service perceptions and mosque engagement operates in Kuching, Sarawak. Thus, this study adopts a more specific and defensible formulation: it examines the relationship between digital-service perceptions and engagement within selected mosques in Kuching. These gaps lead to a focused research need. The field requires empirical evidence that connects the characteristics of digital mosque services as perceived by users with community and youth engagement, while also explaining the contextual reasons behind the observed relationships. Such evidence can complement technology-centred studies of smart mosques and management-centred studies of digital programme systems by bringing the user perspective into the analysis. Therefore, this study addresses this need through a Technology Acceptance Model-informed quantitative phase followed by qualitative explanation.

4. Literature Review

4.1 Digital Transformation in Mosques Institutions

Digital transformation in religious institutions concerns more than the introduction of digital communication channels; it also involves changes in how institutions organise activities, communicate information, provide services, and interact with their communities. In mosque settings, digital platforms may support programme announcements, religious education, communication, participant management, and other administrative activities. Mat Jusoh et al. (2023), for example, identified requirements for a digital management system for 'imarah' mosque programmes, including programme management, participant information, dissemination of activities, and evaluation. This indicates that digitalisation can extend mosque administration beyond conventional processes. At the broader smart-mosque level, Mohammed et al. (2024) show that emerging technologies have been examined in relation to building and operational functions, including energy, security, and resource management. Abas et al. (2025), meanwhile, highlight the relevance of technology integration alongside systematic programme management and congregational engagement. Taken together,



these studies indicate that mosque digitalisation encompasses both operational and community-facing dimensions. However, the user perspective remains less clearly established, particularly concerning how community members and younger users evaluate digital services and whether these evaluations correspond with their participation in mosque activities

4.2 Technology and Congregational Engagement

Recent Malaysian work has begun to connect technology with the social and managerial functions of mosques. Abas et al. (2025) examine mosque management through congregational engagement and technology and emphasise technology integration, systematic programme management, congregational data, and collaborative networks. This work supports a broader understanding of mosque digitalisation in which technology is connected to relationships between mosque institutions and their communities. Nevertheless, the existence of a relationship between technology integration and engagement does not establish how users' perceptions of particular digital services shape that relationship. For this study, engagement is therefore treated as an outcome that must be examined rather than presumed. This distinction is especially relevant to youth because the younger users as a group for whom digital communication may provide an additional channel for interaction with mosque activities. This study does not assume that youth are necessarily more engaged because of their familiarity with digital technology. Instead, it examines whether perceptions of digital services are related to engagement and uses qualitative evidence to explore possible explanations.

4.3 Technology Acceptance Model

The Technology Acceptance Model provides the principal theoretical basis for examining user perceptions. Davis (1989) proposed that perceived usefulness and perceived ease of use are central determinants of technology acceptance. Perceived usefulness refers to the extent to which a person believes that using a particular system would enhance performance, whereas perceived ease of use concerns the extent to which using the system is perceived to require little effort. In the present context, these constructs can be applied to digital mosque services to examine whether users consider such services useful for obtaining information, communicating with mosque institutions, or participating in activities and whether the services are sufficiently accessible and easy to use. TAM is appropriate for this study because the research question concerns user perceptions rather than the technical performance of the digital services themselves. It also provides a parsimonious theoretical structure that avoids introducing multiple untested mechanisms. The study would nevertheless distinguish between technology acceptance and engagement: TAM explains why users may respond positively to a digital service, whereas community engagement captures the extent to which users participate in mosque activities.

4.4 Islamic Governance as Institutional Context

Mosque digitalisation also operates within an institutional setting shaped by religious and governance expectations. The original manuscript identifies amanah, transparency, and accountability as relevant Islamic governance principles. These principles are useful for interpreting why digital services may have significance beyond convenience. Digital communication and administrative systems can potentially make information more accessible and support clearer reporting, but this study does not assume that digitalisation automatically produces trust or accountability. Instead, Islamic governance is treated as a contextual lens for discussing how digital services should be aligned with the responsibilities of mosque institutions.

4.5 The Conceptual Framework

The conceptual framework focuses on the relationship between perceptions of digital mosque services and engagement, with TAM providing the theoretical explanation and Islamic governance providing the institutional context. The first component comprises perceived usefulness and perceived ease of use. These constructs capture users' evaluations of digital mosque services rather than the technical characteristics of the systems themselves. Perceived usefulness concerns whether users believe digital services assist them in obtaining information, communicating with mosque management, or engaging with activities. Perceived ease of use concerns whether those services are accessible and straightforward to use. The second component is community and youth engagement, represented by users' participation and interaction with mosque activities. The framework proposes that more favourable perceptions of digital services may be associated with stronger engagement, but the wording remains associational because the proposed cross-sectional quantitative design cannot by itself establish temporal causality.



Islamic governance principles are positioned as a contextual layer around the relationship. Amanah, transparency, and accountability provide an institutional perspective through which the appropriateness of digital services can be interpreted. Conceptually, the framework can be represented as ‘Perceived Usefulness’ and ‘Perceived Ease of Use’ towards Community and Youth Engagement, with Islamic governance (amanah, transparency, and accountability) providing the institutional context.

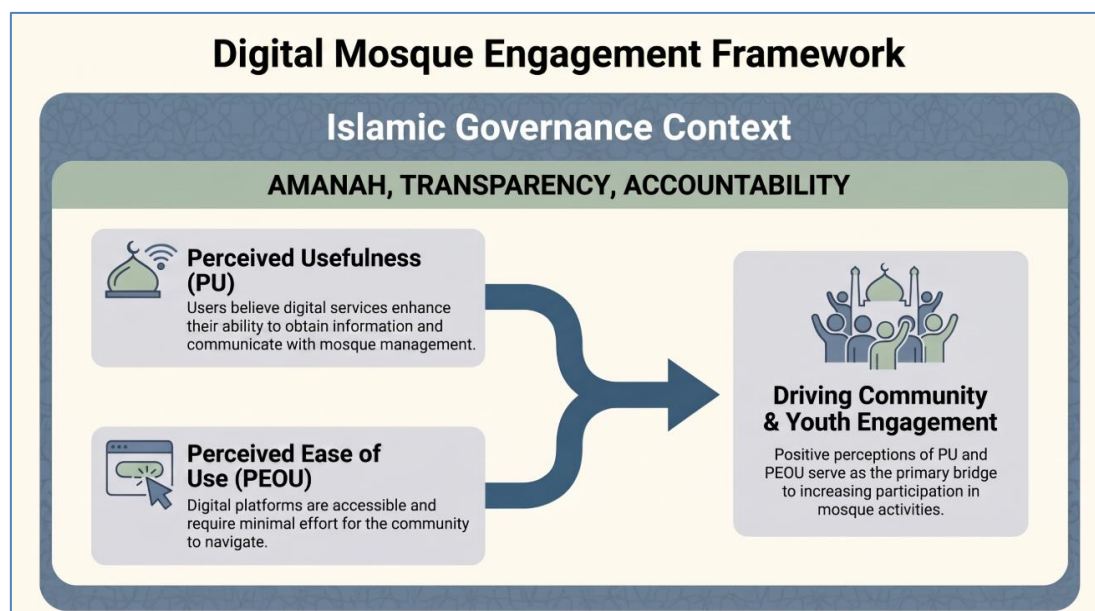


Figure 1: The Digital Mosque Engagement Conceptual Framework

5. Research Methodology

5.1 Research Design

The study adopts a sequential explanatory mixed-method design in which quantitative evidence is collected and analysed before qualitative evidence is used to explain the quantitative patterns. The quantitative phase establishes the distribution of perceptions and engagement and examines the relationships among the specified constructs, while the qualitative phase explores why particular patterns may have occurred and how users and mosque administrators understand digital services. The study focuses on selected mosques in Petra Jaya, Kuching, Sarawak. The study identifies 16 mosques within the Petra Jaya vicinity as the intended study sites. The findings will retain the setting description only to the extent that it is supported by the completed sampling procedure and fieldwork.

5.2 Quantitative Phase

The study targets of 80–100 respondents across the selected mosques. The quantitative phase will recruit community members and youth who have sufficient exposure to the mosque's digital services to evaluate them. The final sampling procedure, inclusion criteria, response rate, and achieved sample size will be reported after data collection.

5.2.1 Research Instrument

A structured questionnaire will measure perceived usefulness, perceived ease of use, and community and youth engagement. Items will be adapted from established measures where appropriate and contextualised for mosque digital services. The findings will report the source of each scale, number of items, response format, translation procedure if applicable, and any pilot testing undertaken.

5.2.2. Quantitative Data Analysis

Descriptive statistics will be used to describe respondent characteristics and the distribution of the principal constructs. Reliability and validity assessment will be conducted for multi-item measures before testing structural relationships. The



study specifies SPSS and PLS-SEM will be used to report the measurement model, including internal consistency and convergent and discriminant validity, model complexity, and achieved sample size.

5.3 Qualitative Phase

The qualitative phase is intended to explain the quantitative results. The study identifies 5–8 mosque committee members and 6–8 youth representatives as qualitative participants. These participant groups can be retained if they remain appropriate after the quantitative phase. Interview questions will focus on the usefulness and accessibility of digital services, barriers to use, reasons for participation or non-participation, administrative feasibility, and expectations concerning digital communication and mosque activities.

5.3.1 Qualitative Data Analysis

The study will be using NVivo and thematic analysis. The analysis will proceed through systematic familiarisation, coding, development and review of themes, and interpretation in relation to the quantitative findings. The findings will be describing the actual coding procedure, researcher involvement, treatment of discrepant interpretations, and any steps taken to strengthen credibility.

5.4 List of mosques in Petrajaya, Kuching, Sarawak

No	Name
1	Sarawak State Mosque
2	Al-Ghazali Mosque
3	Darul Akmal Mosque
4	Darul Abidin Mosque
5	Al-Firdaus Mosque
6	Al-Abyad Mosque
7	Darul Hana Mosque
8	Darul Ibadah Mosque
9	Darul Husnul Khatimah Mosque
10	Baitul Rahim Mosque
11	Darul Hijrah Mosque
12	Kuching City Mosque
13	At-Taqwa Mosque
14	Demak Mosque
15	Darul Falah Mosque
16	Darul Farhanah Mosque

6.0 Conclusion

This study anticipates to contribute at three levels; methodologically, it combines quantitative assessment with qualitative explanation to examine a user-oriented dimension of mosque digitalisation. Conceptually, it applies TAM to a religious-institution context while using Islamic governance as an institutional lens rather than treating governance principles as untested statistical predictors. Empirically, it provides evidence from selected mosques in Kuching, Sarawak, where the relationship between perceptions of digital services and community and youth engagement has not been sufficiently established in the reviewed recent literature. The contribution will nevertheless be interpreted within the scope of the study. Evidence from selected mosques in Petra Jaya will not be able automatically be generalised to all mosques in Sarawak or Malaysia. Similarly, a cross-sectional association between digital-service perceptions and engagement will not be interpreted as proof that digital services cause greater participation. The study will instead establish whether the proposed constructs are related within the studied population and use qualitative evidence to explain plausible mechanisms and contextual conditions. A broader ‘Digital Mosque Model’ may subsequently be developed through further research that incorporates additional governance, organisational, technological, and institutional variables.



References

- Abas, N., Yusof, M., Hj. Siren, N., Abdul Kadir, F. A., & Abbas, R. (2025). Empowering mosque management through congregational engagement and technology: A study of mosques management and social programs. *International Journal of Humanities Technology and Civilization*, 10(1), 98–108. <https://doi.org/10.15282/ijhtc.v10i1.11956>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Mat Jusoh, M. S., Samah, M. N., M. Noor, N. @ K., Jamaludin, A. K., & Ayub, M. N. (2023). Sistem pengurusan digital program ‘imarah’ masjid: Kajian analisis keperluan dan pembangunan [Digital management system of the ‘imarah’ masjid program: An analysis of needs and development study]. *International Journal of Humanities Technology and Civilization*, 8(2), 73–79. <https://doi.org/10.15282/ijhtc.v8i2.9863>
- Ministry of Economy Malaysia. (2021). Malaysia Digital Economy Blueprint (MyDIGITAL). Government of Malaysia. <https://ekonomi.gov.my/en/resources/publications/malaysia-digital-economy-blueprint>
- Mohammed, A. S., Abdulai, I. B., Abbas, J., & Dzimala, A. (2024). Emerging technologies for transforming mosques into smart buildings: A systematic literature review. *International Journal of Research and Scientific Innovation*, 11(6), 510–534. <https://doi.org/10.51244/IJRSI.2024.1106040>
- MyDIGITAL Corporation. (2026). Malaysia Digital 2030 (MD2030): Towards an AI Nation. Government of Malaysia. <https://www.mydigital.gov.my/>