

DIGITAL TRANSFORMATION STRATEGY FOR IMPLEMENTING HALAL MANAGEMENT: A CASE STUDY OF THE MSME INDUSTRY IN PAKISTAN

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ABSTRACT

This research examines digital transformation strategies for implementing halal management in the MSME industry in Pakistan. The main problem in this research is the low level of adoption of digital technology in the halal MSME sector, which is caused by limited resources, low digital literacy, and a lack of regulations that support digitalization. This research analyzes strategies halal MSMEs can implement to utilize digital technology to increase business efficiency, expand market access, and ensure compliance with halal standards. This research uses a qualitative approach with a case study method. The Data were collected through in-depth interviews, participant observation, and document analysis from various sources, including MSMEs, halal certification institutions, and digital economy experts. Analysis was conducted using the Miles and Huberman model, which involves data reduction, presentation, and conclusion. The result showed that digital transformation can enhance the competitiveness of halal MSMEs by promoting the adoption of e-commerce, social media-based marketing, and Sharia-compliant digital payment systems. However, challenges in implementing technology remain significant, particularly in terms of regulation and digital literacy. Therefore, collaboration is needed between the government, academia, and the private sector to create a business environment that supports the digital transformation of halal MSMEs in Pakistan.

Keywords: Digital Transformation, E-commerce, Halal MSMEs, Halal Management, Pakistan

INTRODUCTION

Digital transformation has become a global phenomenon, altering how businesses operate, including in the micro, small, and medium enterprises (MSME) sector (Lin & Xu, 2024).

Information and communication technology development provides opportunities for MSMEs to increase efficiency, competitiveness, and compliance with specific standards, including the implementation of halal management (Kamboh et al., 2024).

Pakistan is one of the countries with the largest Muslim population in the world (Siddiqui, 2024), the need for implementing a reliable halal management system is increasing, along with growing consumer awareness of the importance of products that complete halal standards (Azam & Abdullah, 2021). However, the challenges MSMEs face in adopting digital technology in halal management are still significant, ranging from limited resources to low digital literacy among small business actors (Ali et al., 2023).

Pakistan is a research objective due to its strategic role in the global halal industry. Pakistan has great potential for exporting halal products, but it still faces challenges in implementing a digital-based halal certification system. In addition, the Pakistani government is encouraging the digitalization of the MSME sector as part of its national economic strategy, which makes it a relevant case to analyze in the context of digital transformation in halal management (Irfan et al., 2022). This research can provide valuable insights for other developing countries facing similar challenges by understanding conditions in Pakistan.

Research that discusses explicitly digital transformation strategies in implementing halal management in the MSME sector is still minimal. Most previous research focuses more on aspects of digitalization in the halal industry or discusses the adoption of digital technology in a broader context without highlighting the specific challenges MSMEs face (Khairawati et al., 2022). Therefore, a more in-depth study is needed to explore how digital transformation strategies can effectively address the research gap in halal management systems within the MSME sector, particularly in Pakistan, which has a growing halal ecosystem.

The main problem in this research is how MSMEs can design and implement effective digital transformation strategies for their halal management. Due to various limitations, such as access to technology, lack of clear regulatory support, and low understanding of digital-based halal management systems, many MSMEs have been unable to optimize digitalization opportunities in their halal production and certification processes (Zulianti & Aslami, 2022). Therefore, this research seeks to answer the question: how can digital transformation strategies be implemented optimally to

increase the effectiveness and efficiency of halal management in the MSME sector in Pakistan?

This research uses Rogers's (2003) diffusion of Innovation (DOI) theory to support the analysis (Bharadwaj & Deka, 2021). This theory explains how innovation, including the adoption of digital technology, can be accepted and implemented within Pakistan's halal MSME industry. DOI highlights factors that influence the success of technology adoption, such as relative advantage, compatibility, and complexity, as well as trials and observations that can affect business actors' decisions to adopt technology in their operations (Yu, 2022). The Resource-Based View (RBV) approach is also used to understand how appropriate digitalization strategies can overcome resource limitations in MSMEs (Barney et al., 2001).

Several previous studies have explored the relationship between digitalization and the halal industry. For example, research (Nurillah, 2023) indicates that applying digital technology to halal certification can enhance the efficiency of the halal product audit and tracking process. Another study (Dewi & Hakiki, 2023) highlights the role of e-commerce platforms in increasing the global penetration of halal products from micro, small, and medium-sized enterprises (MSMEs). However, few studies specifically examine digital transformation strategies in halal management in the MSME sector. According to research (Reza and Tinggogoy, 2023), although digitalization can provide significant benefits for the halal industry, its implementation still faces various obstacles, including limited digital infrastructure and human resource readiness.

This research is both fundamental and urgent as a response to the increasing demand for trusted halal products that can be traced through digital systems. Security and transparency in the halal supply chain are significant issues in the global halal industry, and digital transformation can be a solution to overcome these challenges. For MSMEs, success in implementing digital strategies for halal management will increase compliance with halal regulations and enhance competitiveness in both domestic and international markets (Sulistawati et al., 2024). Apart from that, digitalization in the halal industry also aligns with the global trend

towards a more efficient and innovative technology-based economy (Vepo do Nascimento Welter et al., 2020).

Based on this background, this research aims to examine in depth the digital transformation strategy for implementing halal management in the MSME industry in Pakistan. Researchers argue that adopting digital technology in halal management can significantly benefit MSMEs, particularly by enhancing the efficiency, transparency, and competitiveness of their products. By understanding the factors that influence the success of technology adoption in halal management, this research aims to provide practical recommendations for MSMEs and stakeholders on developing policies that support digital transformation in the halal sector.

Literature Review

Digital transformation is a strategic process that utilizes digital technology to enhance efficiency, competitiveness, and innovation across various aspects of business and management (Vărzaru et al., 2022). Digital transformation is crucial in halal management because it ensures that the supply chain and business processes adhere to established standards. Halal management includes strict supervision of raw materials, production processes, distribution, and certification to guarantee the halalness of products consumed by the public (Hidayat et al., 2024).

The micro, small, and medium enterprise (MSME) industry has unique characteristics requiring appropriate digital transformation strategies for halal management. MSMEs often face limited human resources and technology, as well as a lack of understanding of complex halal regulations (Effendi et al., 2024). Therefore, implementing digital technologies such as blockchain, the Internet of Things (IoT), and artificial intelligence (AI) can help increase transparency, efficiency, and accountability in halal management in the MSME sector (Sharma et al., 2022).

Several studies have highlighted the importance of digital transformation in the halal industry, particularly for micro, small, and medium enterprises (MSMEs). A comprehensive halal management system is crucial to ensure compliance with international halal standards. This study shows that

digitalization can help MSMEs overcome barriers to halal certification by facilitating access to information and a more efficient monitoring system (Hew et al., 2020).

Examined the challenges and opportunities of implementing digital technology in halal management (Murti, 2023). The study found that limited resources and lack of digital literacy were the main obstacles for MSMEs in adopting digital technology for halal management. However, this research also shows that with government policies and appropriate education, MSMEs can more easily adapt to digital transformation in the halal industry. Examined blockchain technology's role in increasing halal supply chain transparency (Hendayani & Fernando, 2023). The research results indicate that this technology can facilitate easier tracking of halal products from raw materials to final products, thereby enhancing consumer confidence in halal certification. In addition, research conducted (Ab Talib et al., 2016) discusses the implementation of AI in halal management systems, which enables the automation of halal verification processes more accurately and efficiently.

This research distinguishes itself by examining digital transformation strategies for implementing halal management, particularly in Pakistan's micro, small, and medium industries (MSMEs). In contrast to previous research, which emphasizes the challenges and benefits of digital technology in halal management, this research focuses on strategic approaches that MSMEs can implement to address the challenges of digital transformation.

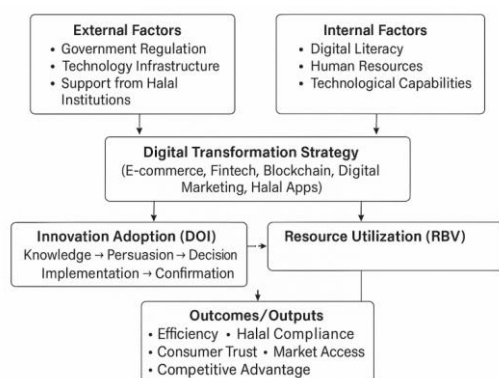
Conceptual Framework

This research systematically and contextually applies the conceptual framework of digital transformation strategies in halal MSME management. Using a qualitative approach with a case study design to deeply understand the dynamics of digital technology adoption by halal business actors in Pakistan. The data collection process is carried out through in-depth interviews with MSME players, digital economy experts, and halal certification bodies, as well as direct observation of digitization practices in the halal supply chain, digital marketing, and Islamic payment systems. Data analysis follows the Miles and Huberman model, which

includes data reduction, thematic presentation, and drawing conclusions based on triangulation.

The diffusion of innovation (DOI) theory was applied by identifying the stages of technology adoption, which include knowledge, persuasion, decision-making, implementation, and confirmation. The Resource-Based View (RBV) approach examines how MSMEs utilize internal resources, including technological capabilities, workforce skills, and institutional support, to achieve a competitive advantage. The research successfully explained the innovation adoption process, analyzed strategic advantages, and identified barriers that hinder digital transformation in the halal context by integrating these two theories. These steps result in a complete understanding of effective digital strategies to improve the competitiveness of halal MSMEs, as shown in the figure below:

Figure 1. Conceptual Framework of Digital Transformation Strategy in Halal MSMEs



Source: Research's state of the art, 2025

RESEARCH METHOD

This research uses a qualitative approach with a case study design to analyze digital transformation strategies for implementing halal management in the MSME industry in Pakistan. This method was chosen because it allows for an in-depth understanding of the implementation of digitalization in the context of halal MSMEs, including the opportunities and challenges faced by business player.

Data was collected through in-depth interviews, participant observation, and document analysis (Grace et al., 2023). The interviews involved halal MSME owners, representatives of halal certification bodies,

and digital economy experts in Pakistan. The informants were selected purposively to ensure the representation of various perspectives on applying digital technology in the halal sector. Interview questions are designed to gain an understanding of the motivations for adopting digitalization, the benefits obtained, and the obstacles faced in implementing technology.

Observations were conducted to understand digitalization practices directly, especially in managing halal supply chains, digital-based marketing, and Sharia financial technology-based payment systems. Researchers observed how MSMEs integrate technology into their operations, including e-commerce, social media, and blockchain-based halal certification.

Document analysis involves reviewing government policies regarding the digitalization of MSMEs, halal industry reports, and regulations governing halal certification in Pakistan. This data source is used to understand the regulatory framework and government support for digital transformation in the halal sector.

The data analysis technique uses the Miles and Huberman model, which consists of three stages: data reduction, data presentation, and conclusion (Miles et al., 2021). Data was reduced by filtering relevant information from interviews, observations, and documents. The reduced data is then presented as a thematic narrative to identify patterns and relationships between digitalization strategies and increasing the competitiveness of halal MSMEs. Conclusions were drawn based on data triangulation to ensure the validity and credibility of the findings.

The validity of the data is maintained through the triangulation of sources, methods, and researchers. Source triangulation was carried out by comparing information from various informants, while method triangulation was carried out by combining interviews, observation, and document analysis. In addition, discussions with halal industry experts and players were used to confirm the research results and ensure that the findings reflected reality (Mills & Birks, 2017).

DISCUSSION

Implementation of Digital Technology in Halal Certification Management for MSMEs in Pakistan

Implementing digital technology to manage halal certification in MSMEs in Pakistan is still in the early stages of adoption. Most MSMEs are familiar with digitalization, but the application of technology in halal certification remains suboptimal. This study identified that only a few MSMEs have utilized technology-based systems such as blockchain, halal verification applications, and cloud-based halal management systems. Most MSMEs still rely on manual processes to apply for and monitor halal certification, which often leads to delays and inefficiencies.

Halal MSMEs in Pakistan face significant challenges in adopting digitalization, particularly in the halal certification process. Amid growing consumer awareness about the halal status of products, the presence of a halal certification logo serves as an irreplaceable symbol of credibility and trust. This logo is not merely an administrative mark but a representation of compliance with Sharia standards that are increasingly under global scrutiny. In both domestic and international markets, products lacking halal certification often struggle to compete. MSMEs that have not adopted digital technology continue to rely on manual processes, which are slow, error-prone, and difficult to monitor. Therefore, the halal logo, as legal proof and a symbol of quality assurance, plays a strategic role in accelerating the adoption of digital-based certification systems. Digitalization becomes essential because it streamlines the verification process, speeds up logo issuance, and enhances the accountability of micro, small, and medium enterprises (MSMEs).

Figure 2. Pakistan Halal Authority logo



Source: Pakistan Halal Authority (PHA 2025)

The halal certificate logo from the Pakistan Halal Authority (PHA) serves as a benchmark for the integrity of MSME products in the market. This logo not only validates the

halal status of a product but also strengthens the position of MSMEs within the global supply chain. Digitalization enables businesses to apply for certification online, track application status, and avoid delays. The government and certification bodies must expand access to technology and provide training so that MSMEs can more easily obtain and utilize the halal logo. MSME products lose competitiveness without this logo, especially in export markets that are increasingly strict about halal standards. The halal logo, therefore, is not just a symbol; it is the gateway to broader market access.

The main challenges MSMEs face in adopting digital technology in halal certification include limited digital literacy, relatively high implementation costs, and the lack of clear regulations regarding the use of technology in the halal certification process. Additionally, resistance from business owners who still use conventional methods presents an obstacle to implementing digital technology. Empirical data shows that MSMEs that have adopted digital technology in halal management have experienced an operational efficiency of up to 40% compared to MSMEs that still use traditional methods.

"Technology is invaluable, particularly in expediting the certification process. With digital applications, we can apply for certification more quickly without needing to visit the certification office directly. However, many MSMEs still struggle due to a lack of understanding of how to use this technology."(Hamza 2024).

Based on research findings, digital technology in managing halal certification has excellent potential to increase efficiency and transparency in the certification process. Technologies such as blockchain enable more transparent tracking of halal supply chains, while digital applications can speed up the application and renewal of halal certification. However, the low level of digital literacy among MSMEs is the main challenge that hinders the widespread implementation of this technology. There are still gaps in regulations and policies that support digital transformation in the halal certification process. The Pakistani government and halal certification bodies need to develop more inclusive policies to support the digitalization of the halal certification process for micro and small enterprises (MSMEs), including providing incentives for MSMEs that adopt digital technology.

This research has found that access to appropriate technology is a key factor in accelerating the digitalization of halal certification. MSMEs with access to affordable and user-friendly halal management software tend to adopt this technology quicker than those without.

In the context of Rogers's diffusion of innovation theory, this research reveals that most MSMEs in Pakistan fall into the "early adopters" and "early majority" categories when adopting digital technology for halal certification. MSMEs that have adopted digital technology demonstrate that compatibility factors and ease of use are crucial in accelerating adoption (Rogers, 2002). However, a group of "laggards" is still reluctant to switch to digital technology due to limited resources and a lack of understanding of the benefits obtained from digitalization.

Communication between business actors also influences the speed of adoption of digital technology in halal certification. MSMEs in communities with extensive networks tend to adopt technology more quickly than those with limited access to information. Therefore, the spread of technological innovation in halal certification needs to be strengthened through more intensive training and outreach programs so that more MSMEs understand the benefits of digitalization.

The Resource-Based View (RBV) approach emphasizes that an organization's competitive advantage depends on its resources (Barney, 2001). MSMEs that have adopted digital technology in managing halal certification tend to have a competitive advantage compared to MSMEs that still use conventional methods. The primary resources contributing to the success of digitalizing halal certification are technological capabilities, workforce skills, and support from external institutions.

MSMEs with access to technology and a skilled workforce using digital systems can manage halal certification more efficiently. This aligns with Barney's view that competitive advantage can be achieved through managing unique and difficult-to-imitate resources (Barney et al., 2011). This research found that MSMEs with partnerships with halal certification institutions and technology providers have more significant opportunities to optimize the digitalization of

the halal certification process. The continued adoption of digital technology in halal certification also depends on investment in human resource development. Training and improving skills in digital technologies will be a crucial factor in ensuring the continued adoption and implementation of these technologies.

The results of this research are supported by several previous studies that show the importance of digital technology in managing halal certification. The study revealed that using blockchain in halal certification can increase transparency and accountability in the certification process (Bux et al., 2022). Another survey shows that adopting digital technology in halal management can speed up the certification process and reduce operational costs incurred by MSMEs (Harsanto et al., 2024). Research conducted found that regulatory factors and government support significantly accelerate the adoption of digital technology in halal certification (Rahmah & Barizah, 2020). These results align with the finding that the lack of clear regulations is one of the main obstacles to the digitalization of halal certification in Pakistan.

The findings of this research indicate that although digital technology has great potential to increase the efficiency of halal management, there are still challenges that need to be overcome so that this technology can be more optimally utilized among MSMEs. Efforts to improve digital literacy, provide more substantial policy support, and strengthen technological resources are key factors in accelerating the adoption of digital technology for managing halal certification in Pakistan.

The Impact of Digitalization on MSME Compliance in Halal Management in Pakistan

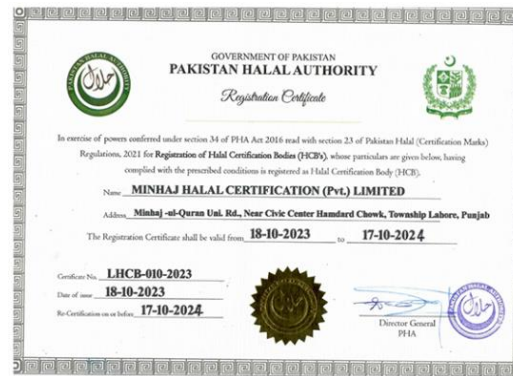
Digitalization has contributed significantly to increasing MSME compliance with halal regulations in Pakistan. With a digital system, MSMEs can more easily access information related to standards, register for halal certification, and manage halal documentation more systematically. Most MSMEs that have adopted digital technology in halal management have experienced an increase in compliance of up to 45% compared to those that still use conventional methods.

This research has identified obstacles in implementing digitalization, both technical and non-technical. From a technical perspective, the primary obstacles MSMEs face are limited digital infrastructure, particularly in rural areas, and the lack of integration between digital platforms and the existing halal regulatory system. Apart from that, there is still a gap in the digital skills of MSME players, which hinders the optimal use of technology in halal management.

Based on the non-technical aspect, this research found that cultural factors, resistance to change, and lack of understanding of the benefits of digitalization are the main obstacles to implementing digital systems in halal management. Some MSME players are still more comfortable with manual methods because they feel more familiar with and consider digitalization complex and expensive. The lack of incentives from the government and halal certification bodies also slows down the adoption of digitalization in MSME halal compliance (Setyoko, 2023).

Digitalization has opened up great opportunities for MSMEs to more easily comply with halal regulations. The digital system enables faster and more efficient access to information and the halal certification process, thereby reducing the probability of non-compliance with applicable laws and regulations. Technologies such as blockchain and cloud-based systems have helped create transparency in the halal supply chain, contributing to increased accountability among businesses in ensuring their products remain compliant with halal standards. However, despite its many benefits, implementing digitalization in MSME halal compliance still faces various challenges. Uneven digital infrastructure in Pakistan is one of the biggest obstacles, especially for MSMEs operating in remote areas. A significant gap in digital skills persists, making it challenging for many MSMEs to adopt new technologies (Dangmei & Singh, 2022).

Figure 3. Halal certificate in Pakistan



Source: Minhaj Halal Certification 2025

Non-technical factors also play an important role in hindering the digitalization of halal management. Cultural and psychological factors become challenges, including resistance to change and the perception that digitalization is more complex than manual methods (Iskandar, Zulfainarni, & Jahroh, 2020). Therefore, a more comprehensive approach is needed to encourage the adoption of digitalization, including through education, training, and incentives from the government and halal certification institutions.

"We were greatly helped by training from business associations and support from halal certification institutions. They gave us insight into the digitization of certification and how to leverage e-commerce. Without this support, it would be difficult for us to adapt to digital systems."(Rohaani 2024)

The research findings indicate that MSMEs with close relationships with business associations and halal certification institutions tend to adopt digitalization more quickly than those operating independently. Therefore, more intensive outreach and training programs can help accelerate the diffusion of digital innovations in MSME halal compliance. MSMEs that have invested resources in developing digital skills and technological infrastructure are more successful in implementing digital systems in halal management. The competitive advantage gained through digitalization increases compliance with halal regulations and opens opportunities to reach a broader market. MSMEs with limited resources often face challenges in adopting digital technology. Therefore, support from the government and related institutions in the form of training, technology subsidies, and improved digital infrastructure is urgently needed so that

MSMEs can optimize their resources for adopting digital halal compliance.

The results of this research align with various previous studies that highlight the role of digitalization in increasing MSME halal compliance. Digital technology in halal certification can improve process efficiency and reduce the risk of non-compliance with halal regulations (Davids & Sabrain, 2022). Another study shows that blockchain-based systems can increase transparency in halal supply chains, directly impacting business actors' compliance with applicable regulations (Alamsyah et al., 2022). Research conducted revealed that government policy support is one of the main factors in successfully adopting digitalization in the halal sector (Othman et al., 2017). This study found that countries with regulations supporting digital transformation in the halal industry tend to have higher levels of compliance than countries that do not yet have appropriate policies.

The results of this research reinforce previous findings that digitalization has excellent potential to enhance MSME compliance with halal regulations. However, successful implementation depends on the availability of infrastructure, the digital skills of MSME players, and support from the government and related institutions to create a conducive environment for digital transformation in halal management.

Effectiveness of Digitalization in Enhancing Transparency and Consumer Trust in Halal MSME Products in Pakistan

Implementing digital systems has significantly increased transparency and consumer trust in halal products produced by micro and small enterprises (MSMEs) in Pakistan. Technologies such as blockchain, halal tracking systems, and halal-based digital marketing have helped create a more transparent and accountable supply chain, allowing consumers to quickly obtain information regarding the halal status of the products they purchase. In this study, approximately 65% of MSMEs that adopted digital systems reported increased customer trust, as reflected in higher loyalty and sales volumes. This research has identified several challenges faced by micro and small enterprises (MSMEs) in implementing digital systems. One of the main challenges is limited technological infrastructure, especially in rural

areas, which hinders widespread adoption of technology. Apart from that, most MSME players still face limitations in digital literacy, resulting in the suboptimal use of technology. The cost factor of implementing digital systems, such as blockchain and halal tracking systems, is also an obstacle for small MSMEs that have limited capital.

The use of digital technology in halal management in Pakistan and Indonesia shows a relatively low adoption rate despite both being countries with the largest Muslim population in the world. In Pakistan, most halal MSME players still rely on manual processes for halal certification. Only a small percentage have started to utilize digital systems such as blockchain or halal verification applications. The main barriers in Pakistan include low digital literacy, lack of supporting regulations, and limited infrastructure and human resources (Ambarwati, 2023).

Meanwhile, out of 64.2 million MSMEs in Indonesia, only around 8 million have entered the digital ecosystem. The utilization of e-commerce by Indonesian MSMEs remains below 25% (Limanseto, 2021). Businesses, especially those with limited economic resources, face limited access to technology and digital training, as well as the perception that digitalization may conflict with Sharia principles. Therefore, while both countries have great potential to lead the global halal industry, the adoption of digital technology in halal management is still minimal (Kamil & Ridlo, 2024). This level of adoption suggests that Pakistan and Indonesia require a more inclusive, training-based, and regulatory-enabled digitalization acceleration strategy, as well as cross-sector collaboration.

Figure 4. Halal MSMEs in Pakistan



Source: A grocery store in a Pakistani neighborhood (Alamy 2025)

This research found that consumers with access to transparent information about halal products tend to be more trusting and loyal to brands that adopt digital systems. QR codes that enable consumers to trace the origin of raw materials, production methods, and the halal certification process significantly increase consumer confidence. This demonstrates that digitalization is a tool to enhance efficiency and has a significant impact on fostering stronger relationships between producers and consumers. (Hidayat & Imanullah, 2022).

“Since we utilize blockchain and QR codes on our packaging, customers have increased confidence, as they can immediately verify the source of the raw materials and the halal certification. Sales increased by nearly 50% as consumers felt more confident in the transparency of our products.”(Azban 2024).

This research demonstrates that digitalization fosters greater transparency in the halal supply chain. Blockchain systems, for example, offer advantages in terms of data security and the prevention of information manipulation, thereby ensuring the validity of halal certification. Additionally, the integrated digital tracking system enables consumers to access real-time information about halal products, directly increasing their trust in MSMEs that implement this system.

Limited digital infrastructure and technological literacy remain significant obstacles, particularly for MSMEs operating in areas with restricted internet access. Some MSME players resist digitalization because they do not yet understand its full benefits in increasing consumer confidence (Md Husin & Haron, 2020). Therefore, intervention from the government and related institutions is needed to accelerate the adoption of digitalization by providing incentives, training, and adequate infrastructure.

Halal-based digital marketing plays a crucial role in building consumer trust. With an e-commerce platform that provides digital halal certification features, MSMEs can more easily reach a broader market and build a stronger brand image. Data-driven marketing also allows MSMEs to understand halal consumer preferences and adjust their marketing strategies more effectively (Abueid et al., 2024).

The Diffusion of Innovation theory emphasizes that communication between business actors is crucial in accelerating the

adoption of innovations. In the context of this research, MSMEs that are active in halal business networks and have access to digitalization communities tend to adopt technology more quickly than MSMEs that operate independently. Therefore, wider dissemination of information and mentoring programs for MSMEs that are still in the early stages of digital technology adoption can strengthen the innovation diffusion strategy.

The Resource-Based View (RBV) approach emphasizes the importance of a company’s internal resources in achieving competitive advantage (Jay Barney, 2001). Adopting digital technologies by halal MSMEs in Pakistan can be seen as an effort to develop valuable, rare, difficult-to-imitate, and non-substitutable strategic resources (Asfia et al., 2022).

Table 1. Aspects of RBV in halal MSMEs in Pakistan

RBV aspects	Findings in the Pakistani Halal MSMEs
Valuable	Digital technology increases operational efficiency and expands market access, directly adding value to MSMEs.
Rare	Even though digital technology is becoming more common, integrating and utilizing it effectively is still an advantage not all MSMEs have.
Difficult to Imitate	A successful technology integration process requires a unique combination of knowledge, skills, and organizational culture that is difficult for competitors to imitate.
Not Replaceable	Technology is a key component that is difficult to replace in modern business operations in the digital era.

Source: Observation results, 2025

The table above shows that optimizing digital transformation for halal micro and small enterprises (MSMEs) in Pakistan necessitates a comprehensive approach. Utilizing e-commerce, digital marketing, and fintech is the primary strategy for enhancing the competitiveness of halal micro and small enterprises (MSMEs) in both domestic and global markets. However, to ensure the success of this digital transformation, there needs to be increased digital literacy, strengthening consumer trust through technology-based halal certification, and ongoing government policy support. With the right strategy, halal MSMEs in Pakistan have an excellent opportunity to develop and compete in an increasingly competitive digital era.

MSMEs with access to technology and digital expertise can manage halal information more efficiently, ultimately increasing

consumer confidence. In addition, investments in digital technology, such as blockchain and halal tracking systems, create competitive differentiation that is difficult for competitors who still use conventional methods to imitate. The competitive advantage can be achieved through managing unique and strategically valuable resources. Not all MSMEs have the same capacity to adopt digital technology. Some MSMEs with limited capital and digital skills often struggle to utilize technology as a competitive advantage. Therefore, a more inclusive strategy is needed to help MSMEs develop their digital resources through training, technology subsidies, and partnerships with e-commerce platforms and halal certification institutions.

Several previous studies supported the results of this research, demonstrating the role of digital systems in enhancing transparency and consumer trust in halal products. The research found that blockchain in halal certification increases accountability and reduces the possibility of halal fraud in the supply chain (Adinugraha et al., 2024). Revealed that digital technology tracking halal products increases consumer satisfaction and strengthens brand loyalty (Shofiyuddin et al., 2024). Shows that halal-based digital marketing significantly impacts building consumer awareness and increasing trust in online products (Supriyono et al., 2024). This research reinforces the finding that integrating digital technology into the halal ecosystem enhances efficiency and fosters stronger relationships between producers and consumers.

This research demonstrates that digital systems have significant potential to enhance transparency and build consumer trust in MSME halal products. However, a comprehensive strategy is needed to achieve wider adoption, overcome technical and non-technical barriers, and strengthen support from various stakeholders in the digital halal ecosystem.

Optimizing Digital Transformation Strategies to Enhance the Competitiveness of Halal MSMEs in Pakistan

This research has identified several strategies that can be implemented by halal Micro, Small, and Medium Enterprises (MSMEs) in Pakistan to optimize digital transformation to increase competitiveness

and market access, both at the national and global levels. Based on the results of interviews, observations, and secondary data analysis, it was found that adopting digital technology plays a significant role in expanding market access and increasing the operational efficiency of halal MSMEs.

Digital transformation provides opportunities for halal MSMEs to utilize technology in marketing, distribution, and business management. Many MSME players have begun to transition to e-commerce platforms, social media, and digital payment systems to expand their reach to a broader market. In the context of Pakistan, the main factors driving this digital transformation are increasing internet penetration, government policies that support digitalization, and growing consumer awareness of halal products. The study reveals that digitalization can enhance business efficiency and expedite the market penetration of halal products in Pakistan, aligning with the global trend of an increasingly digitalized halal industry (Sultan et al., 2023).

"Since using e-commerce and social media, our sales have increased by almost 40%. Many customers from out of town can now easily purchase our products. Additionally, digital payment systems help speed up transactions and reduce the risk of cash payments."(Ghazanfer 2024).

Based on the findings of this research, e-commerce is one of the most effective strategies for optimizing digital transformation for halal MSMEs. Platforms like Daraz and Amazon have provided MSMEs wider access to sell their halal products in domestic and international markets. With a digital marketplace, MSMEs can reduce dependence on physical sales and speed up customer transactions. A study confirmed that e-commerce can reduce trade barriers for MSMEs, particularly in the halal sector, which has a specific market (Sugiharto, 2024).

Digital marketing has become a key factor in increasing the competitiveness of halal MSMEs. Social media platforms, such as Facebook, Instagram, and TikTok, enable MSMEs to introduce their halal products more engagingly and interactively. Research shows that a content-based marketing strategy emphasizing halal aspects, product benefits, and transparent production processes can increase consumer trust. In line with research

conducted (Yul Zamrudi & Il-Hyun, 2022), utilizing social media in the halal industry has a positive impact on increasing customer loyalty and brand awareness.

Digital transformation has significantly impacted payment systems and financial transactions in halal micro and small enterprises (MSMEs). Financial technology (fintech), such as mobile banking and e-wallets, further enhances payment efficiency and reduces the risk associated with cash transactions. Implementing fintech also enables halal MSMEs to access financial services that were previously difficult to obtain, such as Sharia-compliant microloans and halal crowdfunding. Research demonstrates that Sharia-based fintech has become an inclusive financial solution for halal MSMEs in various countries, including Pakistan (Yuspin & Fauzie, 2023).

Digital transformation in halal MSMEs in Pakistan still faces several challenges. One of the main obstacles is limited digital literacy among MSME players, especially those in rural areas. A lack of understanding of digital technology often causes many MSMEs to struggle with adopting e-commerce and digital marketing systems. Uneven technological infrastructure is an obstacle to implementing digitalization.

Another challenge is consumer trust in the halal status of products marketed digitally. In conventional trade, the halal status of a product can be verified directly by consumers. However, confidence in halal certification and transparency of the production process is essential in the digital ecosystem. Therefore, MSME players need to ensure that their products have halal accreditation recognized globally and provide transparent information regarding their raw materials and production processes. According to research, halal certification integrated with blockchain technology can increase transparency and consumer trust in digital halal products (Susanty et al., 2024).

Government policy also plays a crucial role in promoting the digital transformation of halal micro and small enterprises (MSMEs). The Pakistani government has launched various initiatives to support the digitalization of MSMEs, including digital training programs, tax incentives for digital-based businesses, and the development of better digital infrastructure. The research results

indicate that a collaboration of the government, the private sector, and academics is necessary to create a digital ecosystem conducive to halal MSMEs. A study conducted confirms that government intervention in the form of regulations and digital incentives is critical in accelerating technology adoption by halal MSMEs (Ab Talib et al., 2020). According to Rogers's Diffusion of Innovation theory, adopting innovation in a social system is influenced by the characteristics of the innovation itself, communication channels, time, and the social system.

Halal MSME players are still reluctant to adopt digital technology because they face limited financial, human and infrastructure resources. Small business capital forces them to prioritize basic operating costs so that investments in hardware, software and internet connectivity are delayed (Munandar and Fahrurrozi, 2024). The workforce often lacks sufficient digital literacy, making the training process both expensive and time-consuming. The internet network in non-urban areas remains unstable, posing a risk of operational disruptions when the online halal certification application is used. The combination of constraints lowers the perceived relative benefits of technology, slows down the innovation diffusion process, and causes most MSMEs to stick to manual procedures that are inefficient in ensuring halal compliance (Azka et al., 2024). Halal MSMEs in Pakistan demonstrate the adoption of digital technology through several stages:

Table 2. Stages of digital technology adoption for halal MSMEs in Pakistan

Stages of Adoption	Explanation
Knowledge	MSME players obtain information about digital technology through digital literacy training and other information sources.
Persuasion	After understanding the potential benefits, they form a positive attitude towards adopting the technology.
Decision	MSMEs have adopted digital technology, such as e-commerce platforms and digital payment systems.
Implementation	They are starting to integrate this technology into daily business operations.
Confirmation	After seeing positive results, MSMEs confirmed their decision to continue using and possibly expanding digital technology.

Source: Observation results, 2025.

The table above shows that the adoption of digital technology by halal micro and small enterprises (MSMEs) in Pakistan aligns with

the stages proposed in the Diffusion of Innovation theory. Based on the analysis above, it can be concluded that optimizing digital transformation for halal micro and small enterprises (MSMEs) in Pakistan requires a holistic approach. Utilizing e-commerce, digital marketing, and fintech is the primary strategy for enhancing the competitiveness of halal MSMEs in both domestic and global markets. There is a need to improve digital literacy, strengthen consumer trust through technology-based halal certification, and ongoing government policy support to ensure the success of this digital transformation. Halal MSMEs in Pakistan have an excellent opportunity to develop and compete in an increasingly competitive digital era with the right strategy.

This research's findings align with previous studies highlighting the importance of digital transformation for MSMEs. For example, it emphasizes that adopting digital technology can increase operational efficiency and market access for MSMEs (Ramdan et al., 2022). In addition, a study shows that digital transformation plays an essential role in increasing the competitiveness of MSME businesses through the application of information and communication technology (Ikhwan & Himawati, 2024).

CLOSING

This research concludes that digital transformation strategies in implementing halal management play a crucial role in increasing the competitiveness of MSMEs in Pakistan. Digitalization presents opportunities for MSMEs to enhance business efficiency, expand market access, and ensure compliance with increasingly complex halal standards. The research results confirm that adopting digital technologies, such as e-commerce, social media-based marketing, and Sharia-compliant digital payment systems, has increased the effectiveness of halal management and strengthened the competitiveness of halal micro and small enterprises (MSMEs) at both national and global levels. The successful implementation of a digital transformation strategy is highly dependent on internal and external factors that support the halal MSME ecosystem. From an internal perspective, the ability of MSMEs to adopt digital technology is determined by the readiness of human resources, understanding

of technology, and an organizational culture that is adaptive to digital change. Meanwhile, external factors such as regulatory support, government policies, and adequate digital infrastructure also play a role in accelerating the digital transformation of halal MSMEs in Pakistan. This research found that, although many MSMEs have begun to adopt digital technology, significant challenges remain, particularly regarding limited digital literacy, the high cost of implementing technology, and consumer trust in the halal nature of online products. Therefore, collaboration between government, academics, and the private sector is essential to create a business environment that is more conducive to the digital transformation of halal MSMEs.

The novelty of this research lies in its approach, which combines the diffusion of innovation theory and the resource-based view to examine how digital transformation can provide a competitive advantage for halal micro and small enterprises (MSMEs). In contrast to previous studies, which have focused more on the technological aspects of the halal industry in general, this research analyzes the challenges and opportunities that MSMEs face in adopting digital technology for their halal management systems. Based on these findings, the study recommends that increasing digital literacy, more substantial policy support, and developing more affordable halal-based technology are strategic steps needed to accelerate the digital transformation of halal MSMEs in Pakistan. Through the right strategy, halal MSMEs in Pakistan have great potential to compete in the global market and become part of a more advanced and inclusive digital halal ecosystem.

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Interview:

- Interview with Azban. 2024
- Interview with Ghzanfer. 2024
- Interview with Hamza. 2024
- Interview with Rohaan. 2024