Sustainable Halal Tourism in the Digital Age: Lessons from Lombok's Green Economy Initiatives

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ABSTRACT

This study aims to analyze the interrelationship between *green economy prctices*, *digital transformation*, and *halal values* in advancing sustainable halal tourism in Lombok, Indonesia. It seeks to address the existing research gap where previous studies have mainly focused on digital promotion and halal certification, with limited attention to environmental sustainability and community empowerment. A *mixed-methods* approach was employed using a sequential explanatory design. Quantitative data were collected through surveys of 200 respondents—including halal tourism entrepreneurs and Muslim tourists—and analyzed using *Partial Least Squares–Structural Equation Modeling (PLS-SEM)*. Qualitative data were gathered through semi-structured interviews with key stakeholders and analyzed thematically to complement and validate quantitative findings. Findings indicate that *green economy practices* have the strongest influence on sustainable halal tourism performance, followed by *digital transformation* and *halal value adherence*. Qualitative insights reveal that halal and green initiatives in Lombok have evolved in parallel, but their integration remains partial. However, digitalization serves as a critical enabler linking environmental responsibility with halal compliance, enhancing competitiveness and community engagement. This study introduces the *Halal–Green–Digital (HGD) Model*, a new conceptual framework integrating ethical, environmental, and technological dimensions into a unified construct. The HGD Model contributes theoretically to Islamic tourism studies and practically to policy formulation for sustainable, inclusive, and technology-driven halal destinations.

Keywords: *Halal Tourism, Green Economy, Digital Transformation, Sustainable Development, Lombok.*

INTRODUCTION

Halal tourism has become one of the most dynamic and promising sectors of the Islamic economy in supporting inclusive economic growth in countries with large Muslim populations. The Global Muslim Travel Index (Mastercard-Crescent Rating, 2023) estimates that the number of global Muslim tourists will reach 230 million by 2028, contributing USD 225 billion to the economy. Indonesia, through the 2019–2024 National Sharia Economy Masterplan, has positioned the development of halal tourism as one of its leading sectors (Bappenas, 2021).Lombok Island in West Nusa Tenggara Province (NTB) is one of the most prominent models of halal destination development in Indonesia. Known as "The Island of Thousand Mosques," Lombok has received international recognition as the World's Best Halal Tourism Destination (UNWTO, 2019). However, several previous studies have identified that this branding success has not been matched by sustainable governance and adequate digitalization (Hendratmi et al., 2020; Hasanah & Fitriani, 2022).In parallel, the implementation of a green economy has become a major concern in the tourism industry. The green economy

not only emphasizes energy efficiency and nature conservation, but also promotes equitable economic benefits for local communities (OECD, 2022). In the context of halal tourism, these sustainability principles are in line with Islamic values such as rahmatan lil 'alamin, ihsan, and khalifah fil ardh, which emphasize human responsibility for nature conservation (Rahman et al., 2020; Nurhadi, 2021).In addition to sustainability, digital transformation is now a key factor in increasing the competitiveness of halal destinations. The use of digital technologies—such as online booking, virtual tours, smart signage, and social media-based promotion—has been proven to expand market reach and increase service transparency (Buhalis & Sinarta, 2019; Battour et al., 2022). However, the integration between digitalization, the green economy, and halal principles is still partial and has not been realized in a comprehensive model (Abou-Shouk & Khalifa, 2022).Previous studies on halal tourism have generally focused on aspects of digital promotion, halal destination marketing strategies, and halal certification as instruments for increasing tourist confidence (Battour & Ismail, 2016; Eid & El-Gohary, 2019; Rahman et al., 2022). Although these studies have made important contributions to the development of the halal industry, most research still treats environmental sustainability and local community empowerment as secondary issues. In the context of sustainable development, however, these two dimensions are key elements in ensuring a balance between economic, social, and ecological values. Furthermore, there has been little research that simultaneously examines the relationship between halal values, green economy initiatives, and digital transformation within a single integrated analytical framework, especially in the context of tourist destinations such as Lombok, which is known as a pilot project for the development of halal tourism in Indonesia (Henderson, 2020; Kurniawan & Setiawan, 2023).Therefore, this study aims to fill this gap with three main focuses. First, analyzing the relationship between green economy practices and the sustainability level of halal destinations in Lombok. Second, identifying the role of digitalization in strengthening the implementation of sustainability principles in the halal tourism ecosystem. Third, to develop a new conceptual framework called the Halal–Green–Digital (HGD) Model, which serves as a theoretical and practical guide for the development of sustainable halal tourism policies in Indonesia. By combining a mixed methods approach—through qualitative analysis of policies and stakeholder interviews as well as quantitative analysis of tourist and industry player perceptions—this research is expected to contribute empirically and conceptually to the literature on Islamic economics and sustainable tourism policy.

Hypotheses Development

The theoretical framework of this study builds upon three key perspectives: the Theory of Planned Behavior (TPB), the Resource-Based View (RBV), and the Maqasid al-Shariah paradigm. TPB explains that individuals' behavior is influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). In the context of halal tourism, these factors shape the behavioral intentions of entrepreneurs and consumers toward adopting sustainable and ethical business practices. The RBV (Barney, 1991) emphasizes that organizations achieve competitive advantage when they effectively manage valuable, rare, and inimitable resources—such as digital innovation and environmental responsibility. Meanwhile, Maqasid al-Shariah provides the ethical foundation that links economic, environmental, and social welfare dimensions, ensuring that business activities contribute to *maslahah* (public good).

Integrating these frameworks, this study posits that green economy practices—including waste management, renewable energy adoption, and eco-friendly product innovation—enhance the sustainability of halal tourism by strengthening ethical responsibility and environmental performance. Prior studies (e.g., El-Gohary, 2020; Rahman et al., 2023) show that environmentally responsible practices are positively related to destination competitiveness and customer trust. Hence, the following hypothesis is proposed:

H1: Green economy practices positively influence the sustainability performance of halal tourism destinations.

Digital transformation enables the optimization of halal tourism management through smart technologies, e-marketing, and digital platforms that facilitate transparency, traceability, and consumer engagement (Ali & Frew, 2021). In Lombok, digitalization not only enhances market accessibility but also supports the monitoring of environmental and halal standards. Therefore, this study hypothesizes that digital transformation plays a significant role in reinforcing sustainability.

H2: Digital transformation positively influences the sustainability performance of halal tourism destinations.

Furthermore, digital tools may strengthen the implementation of green economy principles by improving resource efficiency, reducing carbon footprints, and fostering collaborative innovation (UNWTO, 2022). The synergy between digitalization and green initiatives is expected to produce higher sustainability outcomes.

H3: Digital transformation mediates the relationship between green economy practices and sustainable halal tourism performance.

Finally, adherence to halal values—reflecting transparency, fairness, and ethical stewardship—acts as a normative control that shapes both digital and environmental strategies. Halal-based governance encourages alignment between business innovation and environmental stewardship (Khan & Henderson, 2022).

H4: Halal values moderate the relationship between green economy practices and sustainable halal tourism performance.

Collectively, these hypotheses form the foundation of the proposed Halal–Green–Digital (HGD) Model, which integrates ethical, environmental, and technological dimensions into a unified framework for achieving sustainable halal tourism in the digital era.

METHOD

This study employs a mixed-methods approach with a sequential explanatory design, integrating quantitative and qualitative analyses to provide a comprehensive understanding of the interrelationship between halal principles, green economy practices, and digital transformation within the context of sustainable halal tourism in Lombok. This design is particularly appropriate because the research problem is multidimensional—encompassing social, economic, environmental, and technological aspects—and therefore requires the combination of numerical and narrative data to construct a holistic conceptual framework (Creswell & Plano Clark, 2018).

The research was conducted in the Province of West Nusa Tenggara (NTB), focusing on Mataram City, Central Lombok, and West Lombok Regencies, which have been at the forefront of implementing halal tourism policies and green economy initiatives under the *Lombok Halal Tourism Master Plan 2019–2025*. The study involved three main stakeholder groups: (1) policymakers from the NTB Tourism Office, LPPOM MUI, and halal-based MSMEs; (2) industry actors such as halal-certified hotels, restaurants, and travel agencies; and (3) Muslim domestic and international tourists visiting Lombok.

Data were collected from both primary and secondary sources. Primary data consisted of survey responses from 200 participants—including tourists and halal industry practitioners—and in-depth interviews with 15 key informants representing government agencies, academics, and local community leaders. Secondary data included regional policy documents, sustainability reports, academic publications, and tourism statistics from the Central Bureau of Statistics (BPS, 2024).

Quantitative data were obtained through structured questionnaires measuring three core constructs: (1) perception of halal value implementation, (2) green economy practices, and (3) digital transformation intensity in tourism services. Qualitative data were gathered through semi-structured interviews and field observations to explore the local narratives of policy implementation and sustainability practices.

Quantitative analysis was conducted using Partial Least Squares – Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0 to test the relationships among the main variables: Halal Value (HV), Green Practice (GP), and Digital Transformation (DT) toward Sustainable Halal Tourism (SHT). Qualitative data were analyzed thematically through systematic stages of coding, categorization, and interpretation of interview transcripts and policy documents. The findings from both strands were integrated during the interpretation phase to synthesize the empirical and theoretical foundations of the proposed Halal–Green–Digital (HGD) Model.

Instrument reliability was assessed using Cronbach's Alpha and Composite Reliability, while convergent and discriminant validity were tested through the Average Variance Extracted (AVE). The credibility of the qualitative findings was ensured through data triangulation, member checking, and peer debriefing, enhancing the robustness and consistency of interpretation across methods.

RESULT AND DISCUSSION

a) Findings

The Province of West Nusa Tenggara (NTB), particularly Lombok Island, has been recognized as one of the world's model destinations for halal tourism since the launch of the *Lombok Halal Tourism Master Plan* in 2019. Local government agencies, together with LPPOM MUI and tourism industry stakeholders, have actively promoted halal certification for accommodations, restaurants, and tour services. Simultaneously, NTB has embedded *green economy* principles in its tourism policy through initiatives such as *Zero Waste Tourism*, the *Green Hotel Initiative*, and the development of *eco-halal villages* in West Lombok (NTB Tourism Office, 2023). However, field observations and interviews revealed that the adoption of sustainability practices among industry players remains uneven and not yet fully integrated with digital transformation efforts.

Results from the PLS-SEM analysis demonstrate that the three main constructs—Halal Value (HV), Green Practice (GP), and Digital Transformation (DT)—exert positive and significant effects on Sustainable Halal Tourism (SHT). The path coefficient for GP → SHT ($\beta = 0.42$, $p < 0.01$) indicates that green economy practices have the strongest influence on sustainable destination performance. DT → SHT ($\beta = 0.36$, $p < 0.05$) also shows that digital transformation significantly enhances the efficiency and competitiveness of halal tourism services. Meanwhile, HV → SHT ($\beta = 0.28$, $p < 0.05$) confirms that adherence to halal values remains a foundational aspect of Lombok's tourism identity, though its direct linkage to environmental sustainability is relatively moderate.

The qualitative findings highlight three key themes. First, the integration of halal and green practices is gradually emerging, with tourism operators adopting eco-friendly measures such as waste management, energy efficiency, and local product utilization. Yet, most have not explicitly connected these actions with the ethical dimension of halal values. As one NTB tourism official noted, *"Halal should not only concern food or services, but also environmental ethics and social responsibility."*

Second, digitalization acts as a key enabler of sustainability. Platforms such as *Traveloka Syariah*, *HalalTrip*, and *GoHalal* serve as new channels for promoting Lombok's halal destinations. Businesses utilizing digital tools were found to achieve greater operational

efficiency and market reach. However, small and medium enterprises (SMEs) still face challenges in adopting technology due to limited digital literacy and infrastructure.

Third, local community empowerment emerges as a crucial pillar of the halal–green–digital nexus. Programs like the *Green Digital Tourism Academy (2024)* provide capacity-building opportunities that link environmental innovation with digital storytelling, allowing local communities to actively participate in promoting Lombok's sustainable halal tourism narrative.

The integration of both quantitative and qualitative findings reveals that sustainable halal tourism cannot be achieved through halal certification or digital promotion alone. Rather, it requires a synergistic combination of ethical, environmental, and technological dimensions. Green economy practices serve as the principal bridge that connects Islamic values with sustainability imperatives, while digitalization functions as an accelerator that amplifies their collective impact.

b) Discussion

The findings confirm that all proposed hypotheses (H1–H4) are supported, aligning with and extending prior empirical studies in Islamic tourism and sustainable development. The strong influence of *green practices* (H1) reinforces previous research by El-Gohary (2020) and Rahman et al. (2023), which emphasized that environmentally responsible operations enhance destination competitiveness and consumer trust in halal tourism contexts. In Lombok's case, green initiatives not only fulfill environmental mandates but also reflect the Islamic principle of *khalifah fil-ardh*—human stewardship over nature—bridging ecological care with spiritual responsibility.

The significant role of *digital transformation* (H2) supports the argument of Ali and Frew (2021) that digital technology serves as a strategic enabler for sustainable tourism through transparency, traceability, and innovation. In Lombok, digital platforms facilitate real-time communication between service providers and travelers, enhancing market visibility while reinforcing halal and green standards. The mediating effect of digitalization (H3) further validates UNWTO's (2022) assertion that digital tools can operationalize green economy principles by optimizing resource use and reducing environmental impact.

The moderating role of *halal values* (H4) is particularly noteworthy. It implies that ethical and spiritual dimensions strengthen the alignment between green and digital strategies, consistent with the Maqasid al-Shariah perspective emphasizing the protection of life, wealth, and the environment. These findings suggest that halal values are not merely normative constructs but functional drivers that guide sustainable business behavior.

Building upon these empirical results, this study proposes the Halal–Green–Digital (HGD) Model as a new conceptual framework integrating three interrelated dimensions: (1) *Halal Value (H)*—representing ethical compliance, social justice, and service integrity; (2) *Green Economy Practice (G)*—encompassing resource efficiency, environmental conservation, and circular economy principles; and (3) *Digital Transformation (D)*—including technological innovation, e-marketing, and halal information systems. Together, these elements form a Sustainable Halal Tourism Ecosystem (SHTE) that is inclusive, ethical, and globally competitive.

This integrative model contributes to the literature by bridging *Islamic ethics, sustainability science, and digital innovation*—a triadic perspective rarely explored in previous studies. Practically, it provides policymakers with a strategic blueprint for designing tourism policies that harmonize faith-based values, environmental responsibility, and technological advancement, positioning Lombok as a benchmark for sustainable halal destinations worldwide.

CONCLUSION

(a) Aim of the Study

This study aimed to develop and empirically test an integrated framework that connects *Halal Value (HV)*, *Green Economy Practice (GP)*, and *Digital Transformation (DT)* toward *Sustainable Halal Tourism (SHT)* in Lombok. The research also sought to synthesize quantitative and qualitative findings to construct the proposed *Halal–Green–Digital (HGD) Model* as a strategic framework for sustainable halal tourism governance.

(b) Result

The PLS-SEM analysis revealed that all three variables—HV, GP, and DT—positively and significantly influenced SHT. Among them, *Green Economy Practice* ($\beta = 0.42$, $p < 0.01$) showed the strongest impact, followed by *Digital Transformation* ($\beta = 0.36$, $p < 0.05$) and *Halal Value* ($\beta = 0.28$, $p < 0.05$). Qualitative findings supported these results, emphasizing that sustainability cannot rely solely on halal certification but must integrate environmental and digital components. The HGD Model thus provides a new theoretical contribution by positioning digital innovation as an accelerator and green economy as the ethical–environmental bridge of halal tourism.

(b) Practical Implications

The findings have several practical implications:

1. Policy Integration: Local governments and tourism authorities should adopt the HGD Model as a guideline for implementing community-based sustainable halal tourism.

2. Industry Incentives: Financial and certification incentives are needed to encourage halal tourism enterprises to implement *green and digital compliance systems*.

3. Capacity Building: Programs such as the *Green Digital Tourism Academy* must be expanded to strengthen digital, environmental, and halal literacy among local communities.

(c) Suggestions for Further Studies

Future studies should test the *Halal–Green–Digital Model* in other regions and contexts to assess its generalizability across different Islamic tourism destinations. Further research can also employ longitudinal designs to measure the dynamic effects of digital innovation and environmental adaptation over time. Moreover, exploring the mediating role of community empowerment or Islamic ethical leadership could enrich the theoretical understanding of sustainable halal tourism.

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