Halal servicescape in the metaverse

Abstract

Purpose – With increasing advances in emerging technologies including the metaverse and a continued rise in Muslim-friendly tourism, hospitality providers need to understand the opportunities and challenges involved in capitalizing on the metaverse phenomenon to design new service environments or servicescapes for their Muslim customers. This article aims to develop a conceptual model of a servicescape in the metaverse that caters to the needs of Muslims and to advance a research agenda in this field.

Design/methodology/approach – The main methodology for this conceptual study is a multidisciplinary literature review. Accordingly, this study synthesized relevant literature on service environments and halal markets from the services marketing, Islamic marketing, and computer science fields to advance a logical framework built on seminal servicescape models and the Stimulus-Organism-Response (SOR) framework.

Findings – This paper provides several contributions. First, this study identifies the experienscape as a suitable foundational servicescape model for halal markets in the metaverse. Second, we introduce the "5 Ps halal metaverse component" which elaborates on the associated opportunities and challenges in catering to the needs of Muslim metaverse travelers. Third, this study develops the halal metaverse servicescape model which factors the relevant media metaverse components. Finally, we propose key managerial implications around four strategic areas and provide a comprehensive research agenda in the concluding section.

Research limitations/implications – Given the conceptual nature of this study, further empirical research is required to ascertain the variables and key relationships proposed in our conceptual model.

Practical implications – The findings of this study highlight the multi-stakeholder and multidisciplinary approaches needed to create a metaverse for halal markets. In addition, our insights help developers and managers to better understand the implications of the metaverse for halal markets and provide them with strategic considerations to better design service landscapes for Muslims in the metaverse.

Originality/value – This is the first conceptual paper that develops a servicescape model in the metaverse in the context of Muslim consumers and comprehensively discusses its challenges and opportunities, thereby advancing the literature on servicescapes for the metaverse as well as service environments optimized for Muslim markets.

Keywords servicescape, service environment, metaverse, halal, services marketing,

Paper type Conceptual paper

1. Introduction

With the continued 9.5% year-on-year growth of halal economies in 2022 including an estimated CAGR of 5.5% in Muslim-friendly travel from 2022 to 2027 (DinarStandard, 2023), it remains crucial for service brands to continuously innovate to differentiate themselves and deliver new value propositions for their halal markets. One promising technological innovation that will transform guest experiences is the emergence of the metaverse. Accordingly, developers and managers need to better understand how the metaverse phenomenon can affect the service environment, or servicescapes, experienced by Muslims.

The servicescape model states that the service environment can profoundly affect customers and employees (Bitner, 1992). In a traditional physical service environment, the core servicescape elements are theorized to consist of ambient conditions, space functionality, signs, symbols, and artifacts (Bitner, 1992). As the service environment has changed from traditional physical settings to more digital forms, so has the applicability of the original servicescape model. Accordingly, the servicescape model has evolved from its initial conception in the context of physical environments (Bitner, 1992) to more digital servicescapes including websites (Harris and Goode, 2010), live streaming (Ji et al., 2024), and interactions with artificial intelligence (AI) in hospitality (Yin et al., 2023).

Due to the impact that servicescapes can have on customer trust and loyalty (Tran and Strutton, 2020; Liu, et al., 2023), it is important to understand how servicescapes can be better designed to meet the needs of Muslim consumers. However, research on appropriate servicescapes for Muslims remains in the nascent stage. In one recent study, Alhothali et al. (2021) found that the religious servicescape – consisting of considerations such as pleasant odor, noise, lighting, audio, and temperature – can positively impact the pilgrims' emotional arousal, service experience, and peace of mind. However, their study was limited to servicescapes specific to the niche religious tours and adapted a generic servicescape

measurement model by Reimer and Kuehn (2005) without clear refinements for Muslim markets. In another development, Noor (2022) conceptualized a general servicescape model for Muslims that is inspired by a prophetic saying and posited that halal servicescapes in emerging environments such as the metaverse warrant further research attention. Thus, a suitable servicescape model that addresses the needs of halal markets and one suitable for the emerging metaverse service environment remains a gap in the literature. For service managers and developers, the question remains of how best to capitalize on the emerging metaverse phenomenon for their growing halal markets.

This study aims to address these gaps by advancing the discussion through bridging the literature in services marketing, Islamic marketing, and computer science to design a servicescape for Muslims in a metaverse environment. The metaverse is a network of shared digital spaces where people can seamlessly interact with the environment and one another (Buhalis et al., 2023). Driven by key technologies including virtual reality (VR), augmented reality (AR), Internet of Things (IoT), AI, and headsets (Yang and Wang, 2023), the metaverse allows for a greater co-creation of new services with consumers (Buhalis et al., 2023). The metaverse continues to receive increasing attention in research in terms of technical systems and consumer perceptions (Du et al., 2023), with scholars anticipating that the technology will disrupt multiple industries (Dwivedi et al., 2022) including the tourism industry through its myriads of service experiences (Buhalis et al., 2023). One central theme in the metaverse discussion is the creation of more immersive and interactive experiences (Koo et al., 2023), with the five senses transcending both physical and virtual realities (Buhalis et al., 2023). For instance, in terms of the level and type of interaction with customers, new experiences can include new ways to educate users on the service (low-interactivity, functional), offering virtual flights and concerts (low-interactivity, hedonic), new augmented physical experiences (high-interactivity, functional) and virtual action tours (high-interactivity, hedonic) (Gursoy et al.,

2022). Hence, the metaverse represents a significant convergence between the physical-digital world (e.g., on-site experiences with AR) and the virtual world (e.g., virtual tourism) (Koo et al., 2023).

With the emphasis on the new service environment that is the metaverse, we feel it is appropriate to update a model in the services marketing literature that acutely focuses on the strategic service role of spaces: the servicescape. Accordingly, the objectives of this paper are as follows:

i) To identify suitable servicescape model(s) in the literature that can serve as a foundation for the development of a halal metaverse servicescape model.

ii) To propose a servicescape model that caters to the nuances of the metaverse and halal markets.

iii) To advance further research on metaverse service environments for halal markets.

As this paper uses the hospitality industry for illustrative examples, this study answers calls for more research in the area of servicescape management in metaverse tourism (Yang and Wang, 2023) and servicescapes beyond the physical service environment to include virtual servicescapes (Mari and Poggesi, 2013). Research on the metaverse for halal markets is also an emerging stream with early research providing important insights on adoption intentions by students (Azhar et al., 2024), banking professionals (Al-Okaily and Alsmadi, 2024; Alshurafat et al., 2024) as well as issues on governance (Alkasasbeh et al., 2024; Megat et al., 2024; Sanad, 2024). In addition, metaverse research in the context of halal tourism is nascent (Aysan et al., 2024). Thus, our study contributes to the emerging discussion of the metaverse in Islamic marketing.

The remainder of this article is structured as follows. The paper will first introduce the concept of the servicescape and key developments relevant to our study. This study then conceptualizes a novel 5 Ps religious component that needs to be factored into a halal servicescape in the metaverse before discussing the important media component of the metaverse. The paper then presents the halal metaverse servicescape model and several technical considerations before concluding with the managerial implications and a research agenda to motivate further research in this area.

2. A suitable servicescape model for the metaverse

The development of a halal metaverse servicescape model begins with an understanding of the servicescape literature and analyzing if there are suitable models that can capture relevant components of a halal metaverse servicescape. As there have been past studies focused on reviewing multiple literature on the servicescape (Mari and Poggesi, 2013, Kandampully et al., 2023), the goal of this section is not to conduct another extensive review on the current state of servicescape research. Tapping on these extant systematic literature reviews as well as a search in Google Scholar and the Scopus database for English journal publications on servicescapes and service environments, we highlight the seminal servicescape models and frameworks relevant to this study in this section. Specifically, we focused on conceptual and empirical papers that catered to new service environments and featured new paradigms in their conceptualization of the servicescape. The approach undertaken in developing our conceptual model based on the literature is in line with the existing literature on theorizing servicescapes (Rosenbaum and Massiah, 2011).

In his seminal paper, Bitner (1992) coined the term "servicescape" to describe the built service environment that interacts with both customers and employees as well as facilitates social interactions between them. The proposed servicescape model theorized that the

perceived offline servicescape consists of three main environmental dimensions: ambient conditions, spatial layout and functionality, and signs, symbols, and artifacts. With the servicescape conceptual framework, the importance of the service environment in influencing the cognitive, affective, and behavioral outcomes was brought to the forefront alongside more traditional marketing strategies such as enticing customer purchasing with pricing incentives or encouraging employee motivation through attractive salaries (Bitner, 1992). Indeed, empirical research supports the importance of the servicescape with studies showing the positive effects of optimized servicescapes on service quality (Reimer and Kuehn, 2005) and customer loyalty (Harris and Goode, 2010). As the perceived servicescape can create value for the service firm by facilitating favorable customer and employee behaviors, it is established that service firms must pay more strategic attention to how the service environment is created.

With innovation and new technological advancements, changes in the service environment have resulted in new servicescape models that can more accurately capture service environment dimensions that matter to customers in these new service contexts. For instance, with the rise of the internet and e-commerce, and more services being provisioned via websites, the classic servicescape model designed for offline environments would not appropriately capture the unique environmental considerations important for customers in the online setting. Accordingly, Harris and Goode (2010) proceeded to conceptualize and empirically test an e-servicescape model for the online service environment. Their research found that the e-servicescape consists of three dimensions: aesthetic appeal, layout and functionality, and financial security. Like the offline servicescape model, the perceived e-servicescape can eventually affect customer purchasing intentions (Harris and Goode, 2010). However, while the dimensions of aesthetic appeal, layout, and functionality are conceptually like the traditional servicescape dimensions, financial security represents a new servicescape dimension that is significantly different and unique to the online service environment. The e-

servicescape dimensions were subsequently applied to studies involving mobile servicescapes (Zhani et al., 2022).

Later, studies involving the servicescape moved away from the mere measurement of physical facilities to include other factors. Rosenbaum and Massiah (2011) expanded the stimulus experienced by the customer in the servicescape to include social, socially symbolic, and natural stimuli. In a more recent development, Pizam and Tasci (2019) introduced a new paradigm to the servicescape literature and argued that social, natural, and cultural components along with the hospitality culture should be factored to accurately account for the overall experience the consumer will have with stakeholders in the hospitality service environment. Table 1 summarizes these key seminal servicescape studies we have identified in this research.

Table 1. Key seminal servicescape studies

Author	Highlight	Service environment	Key dimensions
Bitner (1992)	Introduced the seminal servicescape model	Physical	Ambient conditions, space/function, signs, symbols and artifacts
Harris and Goode (2010)	Early empirical study investigating a servicescape model for online environments	Website	Aesthetic appeal, layout, and functionality, financial security
Zhani et al. (2022)	Adapted scale from Harris and Goode (2010) to the mobile context	Mobile	Aesthetic appeal, layout, and functionality, financial security
Rosenbaum and Massiah (2011)	Early conceptual study to expand stimulus experienced by customers in the servicescape	Objective and subjective facets	Physical, social, socially symbolic, natural dimensions
Pizam and Tasci (2019)	Proposed that the servicescape capture the overall experience the customer may experience with multiple stakeholders in the service environment	Objective and subjective facets involving multiple service stakeholders	Sensory, functional, social, natural, cultural and hospitality culture components

Based on the key servicescape models identified, our study adopts the experienscape model proposed by Pizam and Tasci (2019) as a starting point for developing a halal metaverse servicescape. Despite being conceptualized primarily for the physical world, the components of the experienscape model go beyond the servicescape of the service facility and capture other components that can interact with the customer. This is similar to the immersive experiences that the customer may experience with multiple stakeholders in the metaverse. This conclusion is also in line with suggestions to consider the experienscape when conceptualizing a servicescape for the metaverse (Yang and Wang, 2023, Kandampully et al., 2023).

In addition, we posit that while the experienscape can form the core of our halal metaverse servicescape model, this core needs to be augmented by a halal metaverse component as well as a metaverse media component for the model to be complete. While we acknowledge the contribution of Alhothali et al. (2021) in exploring the religious servicescape, their servicescape was based on the religious tourist experiences and Umrah travel which do not capture the servicescapes experienced by consumers in less specific travel programs. Accordingly, the next section introduces the 5 Ps halal metaverse component which addresses fundamental Muslim needs unique to the multiverse context that can be applied across a broad range of travel types.

3. Religion, Islam, and the metaverse: the 5 Ps halal metaverse component

There is emerging evidence in the literature which suggests the effects that can occur when religion and Islam are interfaced between the real and virtual worlds. In one early study, Leone (2011) found that the concept of religiosity can be interconnected between the real world and the one represented in a virtual world which is Second Life. The effects from the virtual Second Life world were also found to impact the real physical world in the case of education and students' ability to learn Arabic (Dheyaa et al., 2013). With the metaverse being able to offer

new virtual religious experiences (Jun, 2020), this also raises issues of potential digital inequalities including the ability to access and benefit from the metaverse technologies (Kaewkitipong et al., 2023). Virtual surrogates of key religious rituals such as "Virtual Hajj" are also put into the spotlight in terms of their actual function and whether they are meant to educate, simulate, or replace actual experiences (Niu, 2023). Accordingly, ethics and governance surrounding the interaction of religion and metaverse have also gained attention, with frameworks proposed in halal service industries including Islamic Finance (Katterbauer et al., 2023).

Indeed, the consumer behavior of Muslims can be a complex phenomenon. This is because although Muslims are homogeneous in the sense that they can have peculiar faith-based needs (Al-Qaradawi, 2001), Muslims are also a culturally diverse group. The interaction of faith and cultures and the service environment can give rise to various consumer behaviors and consequential expectations of the servicescape. These differences can be more pronounced in the hospitality sector (Hall and Prayag, 2020).

Synthesizing the literature on the faith-based needs of Muslims for halal hospitality (CrescentRating, 2023, Hall and Prayag, 2020) and key findings from studies on the metaverse, religion, and Muslims, this section identifies the 5 Ps that constitute the religiosity component pertinent to the metaverse servicescape. These 5 Ps act as 5 pillars to ensure that the servicescape experience caters to the needs of Muslims. Accordingly, these 5 Ps interact with other servicescape components to affect the responses from the metaverse user. The design of the 5 Ps is also inspired by the call to move beyond the 7 Ps of services marketing to develop Ps unique to Muslim markets (Wilson, 2012).

3.1 Prayerbility

With Muslim consumers potentially glued to their headsets while engaging in the metaverse, the Immersive time (ImT) spent in the metaverse would result in them not being aware of the passage of time (Mogaji et al., 2023). As a central pillar of the Islamic faith, Muslims pray five times a day based on the sun's location in the real physical world (Al-Qaradawi, 2001). While the use of AR may enhance the prayer experience in the physical world, in the virtual world this creates a unique challenge for service providers who may wish for their customers to escape the real world. Accordingly, the halal metaverse servicescape needs to allow Muslim consumers to be aware of prayer times to enable them to perform their prayers in the real world. This prayer-ability ("prayerbility") function needs to be considered in the design elements of the metaverse.

3.2 Permissibility

With the metaverse offering possibilities and experiences that can be both familiar as well as go beyond the imagination of the physical world, it is important to take note of the permissibility of these experiences to Muslims (Al-Qaradawi, 2001). Beyond halal food and drinks, one such consideration is entertainment and, in particular, the pornography industry and its fast adoption of the metaverse (Mogaji et al., 2023). Accordingly, this study agrees with the call by Mogaji et al. (2023) that the content of the metaverse needs to be qualified. In the context of the metaverse, this requires quality checks of the metaverse environment to ensure that the content and virtual spaces are appropriate for the Muslim customer.

3.3 Privacy

While users are interacting in the metaverse through avatars, privacy concerns from the real world may remain for Muslim consumers, especially female travelers. These privacy issues

can surface as metaverse female tourists switch from their avatars to human identities throughout their travel (Koo et al., 2023). Also, a Muslim female metaverse traveler may want to experience the metaverse tourism experience in more private conditions with gender-separated facilities, similar to how they would want to experience these services in the real physical world. Once again, this has direct implications for the design of the spaces and areas of interaction in the metaverse.

3.4 Personalization

Muslims are composed of diverse cultures. Accordingly, the design of the metaverse should not be a static one and instead should dynamically cater to the cultural needs of Muslim consumers. While this may be impossible for a purely physical service facility in the real world, such dynamic changes based on the digital profile of the user are possible in the metaverse with personalization aided by data analysis through AI. This represents an opportunity to enhance service experiences through the metaverse by enabling greater personalization. Such personalization can be done using extended reality (XR), in which the user can experience more personalized content when at the destination itself (Buhalis et al., 2023). However, this degree of personalization, coupled with the element of privacy discussed earlier, should not result in unnecessary spiritual divides between users (Kaewkitipong et al., 2023).

3.5 Prophecy

The final religious sub-component that is unique to the halal metaverse servicescape is labelled prophecy. This encapsulates the idea that all good deeds and actions in the physical world, inspired by the prophetic tradition, should be replicable by the consumer using the required senses but translated appropriately to the metaverse. Examples of this can include the ability to

donate to charity or perform Islamic greetings and prayers. Here again, there is an opportunity to enable the user to experience such prophetic tasks in new and more immersive ways.

4. Metaverse media component

We now turn our attention to the media component of the metaverse. The concept of the metaverse, located at the intersection of virtual reality and human interaction, continues to draw significant attention in computer science research with studies acknowledging its technical (Park and Kim, 2022) and security challenges (Wang et al., 2022). As the metaverse evolves, so do the technical requirements and design methodologies necessary for optimizing user experiences within these virtual environments. This section discusses key research developments and their implications for building effective media components in the metaverse.

Researchers such as Dong and Lee (2023) have thoroughly analyzed the technical demands, including bandwidth, latency, and network traffic patterns, that are crucial for ensuring a high-quality user experience in XR platforms. Their insights are pivotal for understanding the baseline requirements for immersive interactions in the metaverse. Complementing this, Lotfi et al. (2023) address the challenges of efficient data delivery in the metaverse, highlighting the essential role of IoT devices in facilitating seamless information flow. Their study underscores the necessity for robust data management frameworks that can support the vast and varied demands of metaverse environments.

On the design front, Guan and Morris (2023) propose a comprehensive framework for designing hyper-connected social spaces. This framework aims to enhance user engagement through thoughtful spatial organization and interactive elements, thereby fostering more meaningful social interactions within the metaverse. In a similar focus on spaces, Meng et al. (2023) introduce a task-oriented design methodology, which prioritizes user-centric design and

functional virtual spaces. This approach is particularly effective in tailoring metaverse environments to specific user tasks, enhancing both utility and user satisfaction.

Lastly, Du et al. (2023) explored the consumer's quality of experience, applying the Stimulus-Organism-Response (S-O-R) framework to the metaverse context. They identify critical media attributes—interactivity, vividness, personalization, informativeness, and ergonomic design—as key factors that influence user cognitive and emotional responses, which in turn shape behavioral outcomes. Table 2 summarizes these key selected computer science studies on the metaverse.

Table 2. Summary of selected computer science studies on the metaverse

Research perspective	Key researchers	Focus area
Multimedia communications	Dong and Lee (2023)	Extended reality (XR) technologies
Semantic information	Lotfi et al. (2023)	Data delivery by sensing IoT devices
Social interaction dynamics	Guan and Morris (2023)	Hyper-connected social spaces
Task-oriented approach	Meng et al. (2023)	Task-oriented design for virtual spaces
Consumer-centric approach (S-O-R framework)	Du et al. (2023)	Media attributes, media quality, ergonomic design

Source: Table created by the authors

While the above literature in Table 2 can provide useful technical specifications for the implementation of a halal servicescape in the metaverse, the work of Du et al. (2023) stands out as the most relevant for our purpose of constructing a servicescape model as it considers the metaverse media component and how consumers will respond to such media. In their study, Du et al. (2023) presented an in-depth analysis of stimuli in the metaverse, highlighting key aspects such as interactivity, vividness, personalization, informativeness, and system response,

alongside ergonomic design. These elements act as catalysts for cognitive and emotional reactions, which in turn influence the behavioral and attitudinal outcomes in the metaverse.

Importantly, the conceptualization of the S-O-R framework for the metaverse as discussed in Du et al. (2023) is useful for the development of a metaverse servicescape. This is because the S-O-R framework is a fundamental theoretical framework underpinning the conceptualization of servicescape models and describes how the service environment (stimulus – S) can cognitively or affectively impact the consumer (organism – O) which can then lead to behavioral responses (R) (Bitner, 1992, Pizam and Tasci, 2019).

Accordingly, our study will factor the stimulus proposed by Du et al. (2023) into our halal metaverse servicescape model. Merging their framework with the servicescape model offers a distinctive perspective for examining digital environments. This integration of ideas forms a foundation for a deeper comprehension of user experiences in virtual spaces.

5. The halal metaverse servicescape model

In this research, the Pizam and Tasci (2019) experienscape model and the S-O-R model by Du et al. (2023) have provided robust theoretical grounding for the conceptualization of our model. Based on a synthesis of the previous discussions, this study proposes the following halal metaverse servicescape model as shown in Figure 1.

Figure 1. The halal metaverse servicescape model
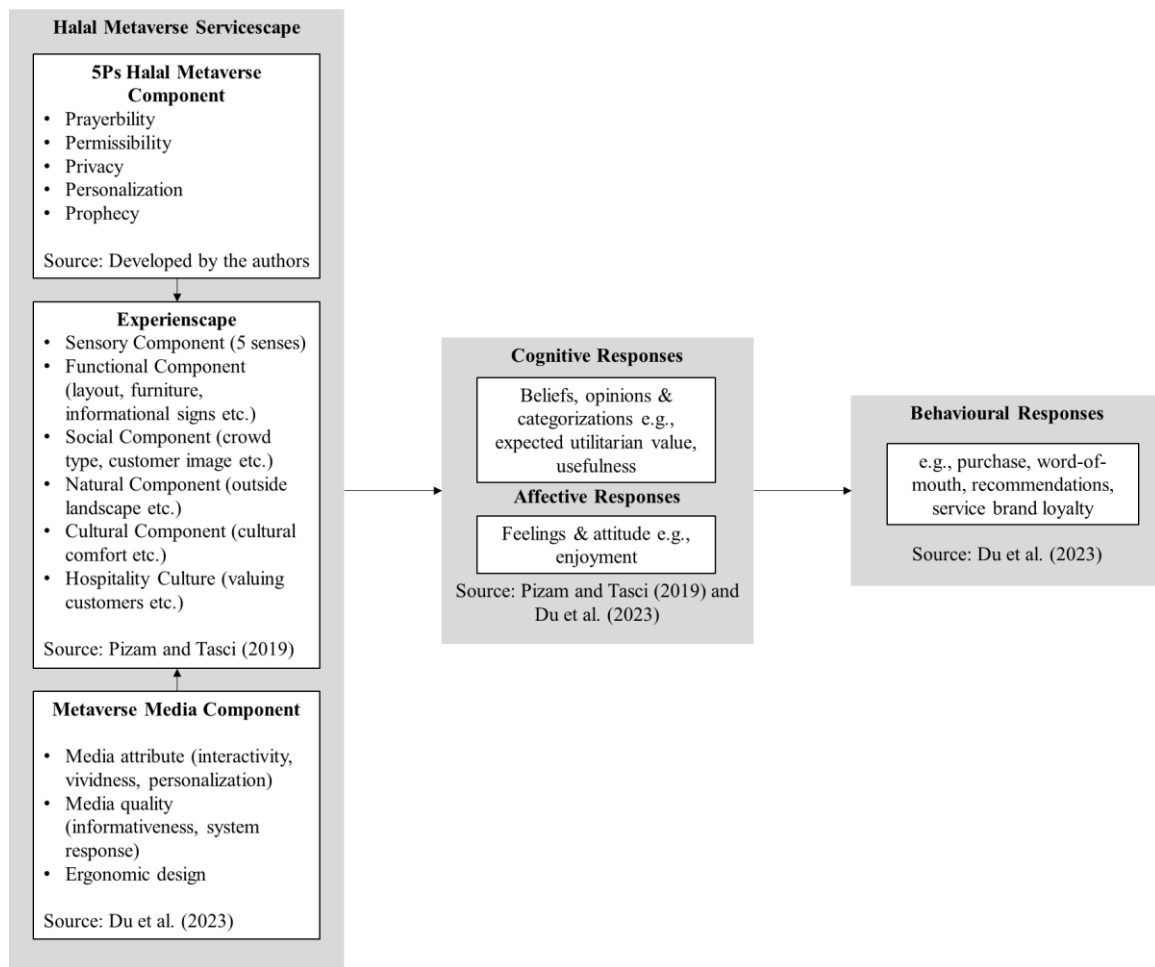
Source: Figure created by the authors

While the original servicescape framework has paid attention to the effects of the service environment on both customers and employees (Bitner, 1992), our model in Figure 1 captures the effects on customers as per the focus of this study. Accordingly, the important interactions between the 5 Ps halal metaverse component, the metaverse media component, and the experienscape which actualizes in a halal metaverse servicescape are captured in Figure 1. For instance, a halal servicescape in the metaverse requires that a degree of hospitality be accorded to Muslims. This can come in the form of Islamic greetings (5 Ps halal metaverse component) that an interactive virtual character (metaverse media component) can provide to the Muslim customer.

Responses to the halal metaverse servicescape can be cognitive or affective in nature (Pizam and Tasci, 2019) including having a perceived usefulness of the halal servicescape and enjoying the overall immersive experience in the metaverse (Du et al., 2023). The resulting behavioral outcomes can include immersive experiences that result in favorable repeat visits to the metaverse. These theorized responses are in line with the current literature in the context of both traditional servicescapes (Bitner, 1992) and digital servicescapes including website (Harris and Goode, 2010) and mobile (Zhani et al., 2022) service environments. While such positive response examples are illustrated in Figure 1, we acknowledge that there could be a risk of negative behaviors peculiar to the metaverse (Mogaji et al., 2023).

Our conceptual model illustrates that the research approach undertaken in this study goes beyond the discussion of technological innovation; our study considers the importance of creating spaces that resonate with the cultural, ethical, and spiritual nuances of the Muslim community. Technology-wise, this involves a meticulous integration of XR technologies (Dong and Lee, 2023) to create immersive experiences that align with Islamic values and provide a sense of familiarity and comfort to Muslim users that cater to their personalized needs (Du et al., 2023). In the same vein, we highlight below the five critical technical challenges associated with actualizing our halal metaverse servicescape model.

First, in the area of enhanced community engagement, an unexpected outcome is the degree to which the halal metaverse servicescape fosters community engagement beyond traditional design expectations. Users may find novel ways of utilizing these virtual spaces for gatherings, educational sessions, or spiritual practices that were not initially anticipated by the developers. This could lead to a lack of environmental facilitation for the user or even negative perceptions as the environment has not catered to the user's expectations.

Second, there could be real technological discomfort. While aiming to enhance user experience through advanced technologies, developers might find that some users experience

a sense of technological overwhelm or discomfort, particularly among those less familiar with virtual environments. This can affect user engagement negatively, contrary to the intended goals of inclusivity and accessibility. Indeed, technological acceptance remains an important strategic goal for businesses catering to halal markets (Noor, 2024).

Third, there are also limitations in the form of technological constraints. The current technological infrastructure may limit the full realization of an immersive halal metaverse servicescape. Issues like latency, hardware requirements, and software compatibility can impact user experience and accessibility.

Fourth, it is worth emphasizing the ethical considerations. While the technological advancements in the metaverse offer remarkable opportunities for creating engaging and personalized user experiences, they also raise significant ethical concerns, particularly around data privacy. The balance between innovative content delivery and the protection of user data is a contentious issue that requires ongoing scrutiny. Collaborations with halal certifying bodies, as mentioned, not only ensure compliance with religious standards but also enhance the ethical oversight of these virtual environments.

Finally is the issue of cultural authenticity squared against technological innovation. There is a critical debate about maintaining cultural authenticity amidst rapid technological advancements. While the technology allows for greater personalization and immersive experiences, there is a risk that these technologies could overshadow the fundamental cultural and religious practices they aim to enhance. Ensuring that technological innovations serve to support and not supplant cultural values is paramount.

6. Conclusion and further research questions

This paper embarked on a quest to develop a conceptual model of a halal metaverse servicescape, integrating insights from existing servicescape literature, metaverse technology,

and the unique needs of Muslim consumers. This endeavor aligns with the established methodologies for conceptualizing servicescapes as outlined by Rosenbaum and Massiah (2011) and employs a multidisciplinary approach consistent with the work of Pizam and Tasci (2019). The foundation of our model is the Stimulus-Organism-Response (S-O-R) framework, a cornerstone of servicescape theory enhanced by Bitner (1992) and adapted to digital realms (Du et al. 2023).

The servicescape model was contextualized to the hospitality industry which offers a variety of opportunities to fully capitalize on the experiences afforded by the metaverse. By navigating and integrating several frameworks and insights, the concept of a culturally sensitive, technologically advanced, and ethically informed halal metaverse servicescape emerges. This offers a multidimensional approach to creating virtual spaces that are not just immersive but respectful and representative of the cultural and religious values of Muslim communities.

The development of a servicescape model for the metaverse contributes to the services marketing literature on the management of customer behaviors in the new metaverse environment using servicescapes. The focus of the servicescape on Muslim markets and hospitality also advances the halal services marketing literature in the discussion of the emerging metaverse environment and the importance of developing a servicescape catered to the needs of Muslim markets.

Beyond contributing to theorizing a servicescape model for halal markets in the metaverse, our study gives rise to several practical contributions and managerial implementation considerations. First, sophisticated algorithms and innovative systems can be used to cater to the individual's preferences in halal content. This dynamic approach to content curation is designed to address the diverse needs and preferences of the Muslim community, ensuring that each user's interaction within the metaverse is meaningful, relevant, and

respectful of their cultural context. Second, the challenges associated with accessibility and inclusivity need to be addressed, including the provision of user-friendly interfaces, language options, and assistive technologies that make the metaverse servicescape a space for all stakeholders (Dwivedi et al., 2022). To aid in this endeavor, more collaborative spaces that transcend traditional commercial interactions between responsible communities are required in the metaverse (Wang et al., 2022). Finally, a strong emphasis on ethical data handling practices is necessary (Floridi, 2019). Therefore, collaboration is needed with reputable halal certifying bodies and will be a testament to the commitment to authenticity and trust in the servicescape. With increasing integration between AI and blockchain technologies, the above real-time personalization and transparent halal certification processes will be possible (Dwivedi et al., 2022).

Overall, the halal metaverse servicescape model serves as a reference point for developers, service managers, and all stakeholders to design service environments in the metaverse that are appropriate and optimized for Muslim consumers. Table 3 consolidates the four strategic areas and the key managerial implications of our study.

Table 3. Managerial implications of a halal servicescape in the metaverse

Area	Managerial Implication
Systems and culture	• A dynamic approach to creating a virtual service environment using sophisticated algorithms and innovative systems is required to cater to the halal market. • System improvements should be done iteratively with consumer feedback to ensure the effective manifestation of cultural elements in the virtual service environment.

Area	Managerial Implication
Accessibility and inclusivity	• User-friendly interfaces, language options, and innovation in assistive technologies are required to create a servicescape in the metaverse that can serve a broad range of stakeholders. • Benefits of the halal servicescape in the metaverse need to be clearly communicated to all stakeholders to increase adoption and reduce technological resistance.
Ethics and data governance	• Collaboration with halal certifying bodies, data, and ethics experts is needed to create personalized and transparent processes and service experiences. • Advisory boards should be diversified to include academic experts at the forefront of research in halal economies and emerging technologies. This enables managerial decisions to be informed by state-of-the-art insights.
Development and design	• Multi-stakeholder approach consisting of developers, brands, service managers, policymakers, and customers is vital to develop an immersive and effective metaverse environment. • The halal metaverse servicescape model illustrates that cross-collaboration between professionals from different specializations including religion, hospitality, media, computer engineering, and service management is key to creating an integrated and holistic virtual service environment.

Source: Table created by the authors

The potential for further study in this area is vast, promising to yield deeper insights into the effective design and implementation of culturally nuanced virtual environments. The stage for a new era in the development of culturally sensitive virtual environments continues to push the boundaries of technology and cultural integration. Accordingly, the halal metaverse servicescape can emerge as a vibrant, inclusive, and ethically grounded community space. Therefore, this study lays the foundation and encourages further research and development in the realm of culturally attuned virtual experiences.

To the best of our knowledge, while our paper is the first to provide an important theoretical premise for the development of a halal servicescape model for the metaverse, a key limitation is the conceptual nature of this paper. Thus, this paper serves as a starting point for future empirical studies to validate the relationships proposed in our model and to test the applicability of the model for other industries beyond hospitality. This includes exploring the model's applicability across different industries and cultural contexts. Longitudinal studies could also provide deeper insights into how continuous interaction with a culturally tailored metaverse impacts consumer behavior and satisfaction over time. The research agenda in Table 4 outlines the above research directions as well as other research questions that can inspire more research on servicescapes in the metaverse and in the context of Muslim markets.

Table 4. A research agenda for halal servicescape in the metaverse

Area	Research question
Halal metaverse servicescape dimensions	• While our conceptual model advances the servicescape in the context of the metaverse and for Muslim markets, future empirical studies are needed to validate the model, delineate current conceptual overlaps with created measures, and assess which dimensions are more influential than others in affecting the metaverse servicescape.
	• How do the different components of the halal metaverse servicescape model affect cognitive and affective responses respectively (Zhani et al., 2022)?
	• As the metaverse servicescape is owned by and created for multiple stakeholders, how can the overall servicescape come together cohesively to promote brand experiences coherent with different service brands from different stakeholders?
	• Which elements of the halal metaverse servicescape, in particular components associated with the experienscape, remain relatively speculative and require more research and development?

Area	Research question
	• How does the impact of each dimension change with prolonged engagement in the metaverse?
5 Ps halal metaverse component	• This paper conceptualizes five sub-components to cater to the needs of Muslims in the metaverse. Which elements are most important and how do they affect one another? • The conceptualization of the 5 Ps in the halal metaverse servicescape model is useful to communicate the element of governance in ensuring the servicescape is appropriate while demarcating the metaverse servicescape elements from the specific considerations of Muslims. However, how should the 5 Ps be operationalized and measured in an empirical model? • The interaction between religion and virtual environments poses critical theological considerations (Jun, 2020). What are the key issues surrounding the practice of Islam and faith on servicescapes in the metaverse? • What are the repercussions of a lack of halal metaverse components on the halal metaverse servicescape? To this, which components are perceived to be the most important from the perspectives of consumers in the halal metaverse? • How do we reach a consensus for a suitable governance framework on religious servicescapes in the metaverse (Katterbauer et al., 2023)?
Metaverse media component	• How does the level of interactivity expected by the consumer change across functional and hedonic activities in the metaverse? • In what situations should interactivity, vividness, and personalization be reduced in the metaverse? • What are the expectations of Muslim consumers on the media components in the metaverse? • How does perceived media quality change with time in the metaverse?
Outcomes of halal metaverse servicescape	• How does a halal metaverse servicescape impact the level of religiosity of Muslim consumers? Accordingly, in what way would this affect the 5 Ps religious component in the halal metaverse servicescape?

Area	Research question
	• How does the halal metaverse servicescape affect the halal servicescape and halal brands in the real world?
	• What are the possible adverse effects of metaverse usage for Muslim consumers?

Source: Table created by the authors

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