



PLANNING MALAYSIA:

Journal of the Malaysian Institute of Planners

VOLUME 24 ISSUE 2 (2026), Page 691 – 704

MUSLIM FAITH-BASED NEEDS IN TOURISM FROM THE PERSPECTIVE OF MOBILE SERVICES: A BIBLIOMETRIC ANALYSIS

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Abstract

This study examines patterns of revolutionary change over the years in the context of behavioral changes among Muslim tourists when using mobile services in fulfill their faith-based needs. This study collected past journals to observe patterns in how past researchers discussed related topics and how these discussions revolved around alignment with tourism market demand and destination hosts' acceptance levels in welcoming Muslim tourists. Using VOSviewer, this study conducted a bibliometric analysis of scholarly works in the Scopus database, filtered for the period 1990 to 2024. Overall, many past researchers discussed topics related to Muslim faith-based needs, but in different terms. Furthermore, most journals have an interrelation with psychological experiences that discuss Muslim tourists' behavioral changes in fulfilling their faith-based needs during travelling. Such behavioral changes reflect their cognitive and affective responses, destination awareness, satisfaction levels, revisit intentions, and word of mouth. However, only a few journals discuss the correlation between changes in Muslim tourists' behaviour and mobile consumption while travelling, as mobile services such as social media applications have only recently begun to bloom again after five years. However, this research will provide clearer, better guidance and improve the institution/scientific/country's research productivity.

Keywords: Muslim faith-based, Muslim Friendly Tourism, Psychological Experience, Mobile services

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INTRODUCTION

Muslim-friendly services and Halal tourism have been closely interrelated, as they are core elements in developing the Halal tourism niche. Muslim tourists have globally increased, and Halal tourism has become widespread, aligning with the Muslim tourists' demand. As reported by CrescenRating, in 2022, the number of Muslim international arrivals reached 110 million, regaining 68% of the pre-pandemic levels seen in 2019. For 2023, projections indicate that Muslim international arrivals will reach 140 million. This condition would represent a recovery to 87% of 2019 levels, reinforcing the ongoing recovery. By 2024, CrescentRating projects a complete recovery, with the total number of Muslim arrivals expected to match the 2019 figure of 160 million. Thus, this strongly demonstrates that Muslim faith-based needs have become a necessity and must be fulfilled by all stakeholders involved, who must consider them when providing tourism services at their locations. Their fulfillment of demand will, in turn, determine their travel motivations, satisfactions, experiences, and behavioral changes.

To cater to the growing market of Muslim travelers, stakeholders can leverage the newest technology by offering services through mobile applications. This enables more accessible and convenient marketing and service compared to traditional methods such as brochures, newspapers, banners, and pamphlets. The digitization of services and cultural sites plays a crucial role in enhancing the tourist experience, especially in preserving heritage and ensuring a seamless, faith-affirming journey for Muslim travelers. For example, the digitalization of built heritage sites and the use of GIS technology in landscape management have demonstrated how modern technology can enhance both conservation efforts and tourist experiences (Abdullah et al., 2024; Baharuddin et al., 2024). Furthermore, ensuring the safety of tourists, particularly Muslim travelers seeking prayer spaces or Halal services, is another important consideration, and mobile services can effectively address these concerns (Jaelani et al., 2021). However, studies on perceived environmental value in the context of mobile services for Muslim tourists are still relatively scarce (Preko et al., 2020), resulting in a lack of updated references for stakeholders to guide them in serving Muslim tourists through these services. This study highlights a gap in existing research on how Muslim tourists use mobile services to fulfill their faith-based needs during travel and how these services influence their travel behaviour.

While previous studies have examined Muslim faith-based needs, Islamic attributes of destinations, and technology use in tourism as separate topics, there is still limited work that systematically connects these strands from a long-term and global perspective. Building on this gap, this study offers a bibliometric mapping of three interconnected domains: Muslim faith-based needs, psychological experience, and mobile consumption, covering the period

1990 to 2024, and shows how mobile services have progressively become a key medium through which Muslim tourists fulfil their faith-based needs. By visualising these developments, the paper clarifies emerging research themes. It identifies new opportunities for Muslim-friendly destinations and industry stakeholders better to align mobile services with Muslim tourists' religious requirements.

LITERATURE REVIEW

Interrelation Between Fulfillment of Faith-Based Need and Psychological Experience in Mobile Consumption

The use of this IT application through mobile devices naturally depends on the user's culture (Yuen et al., 2015). It is very common in Muslim tourists' perspective for them to refer to religious apps, such as a prayer app, as part of their daily routine in learning and practicing their religious activities (Nisa, E.F., 2018). Consuming mobile apps compared to surfing websites for geo-locating any Muslim-friendly destinations assists them in deciding to travel to those specific destinations and even determining their revisit intention if it surpasses their satisfaction level and great travel experiences during their stay. Digital platforms are a key component in product and service delivery. Other stakeholders, such as business owners, especially Halal entrepreneurs, can seize this opportunity by creating and providing a new digital platform that can be personalized to meet every aspect of travel needs, specifically for Muslim tourists. They should look for extremely user-friendly apps that enable customers to share everything (Brown, 2006). Hence, there are many opportunities to explore and apply to Muslim-friendly tourism products. This field of tourism not only provides exclusively for Muslim tourists but also serves non-Muslim tourists (Brown, 2006; Faiza & Michelle, 2017; Priyatmoko & Maulana, 2022)



Figure 1: Contents consumed by Muslim travelers depending on the type of generation

Mastercard and HalalTrip (2017) reported that eight content types are consumed by Muslim tourists, based on a survey conducted via the HalalTrip mobile application. These eight contents are listed, each from a different generation. In Figure 1 above shows that 20% of the respondents, who are Generation Z and are less than 24 years old, use HalalTrip most for its prayer times, qibla, and to search for nearby mosques. Meanwhile, millennials (40%) aged 24 to 37 are likely the most consumers of HalalTrip features, seeking Halal restaurants, Muslim-friendly hotels, destination articles, and top things to do. Then, the next generation is Generation X (20%), aged 38 to 53, which can be considered a middle-aged group, and they consumed information related to attraction guides, city guides, and suggested itineraries. These age classes still prefer brochures and pamphlet presentations, but in online forms.

Meanwhile, the unknown background is seeking city guides and halal restaurants. Hence, this shows that these generations are heavily reliant on technological devices such as tablets and smartphones (Roy & Jasrotia, 2024), which also strongly supports the idea that having a Halal travel mobile app can

help them in many ways and assist them in always staying well-informed, even in unfamiliar places. They explore the destinations they want to visit by engaging with technology in eager to learn how it works without any fear (Noor, 2019). Recently, many companies have engaged in generational marketing by tailoring their marketing mix to specific generations (Chaney et al., 2017). The latest generation, which is between Millennials, Gen Z, and soon Gen Alpha, will somehow naturally carry an essential role in deciding their family travel selection and destinations (Tiago & Studies, 2013)

Entrepreneurs or business owners, especially Muslim-friendly business owners, might need to be ready for these generations, as they have become the next crucial target of tourists, seeking to be satisfied as they will be reviewing and making decisions, especially from Gen Alpha (Mastercard-Crescent Rating, 2020), based on content through social media before planning and during the trip. Business owners can offer customized edutainment activities or programs tailored to their preferences, along with family package offers and promotions.

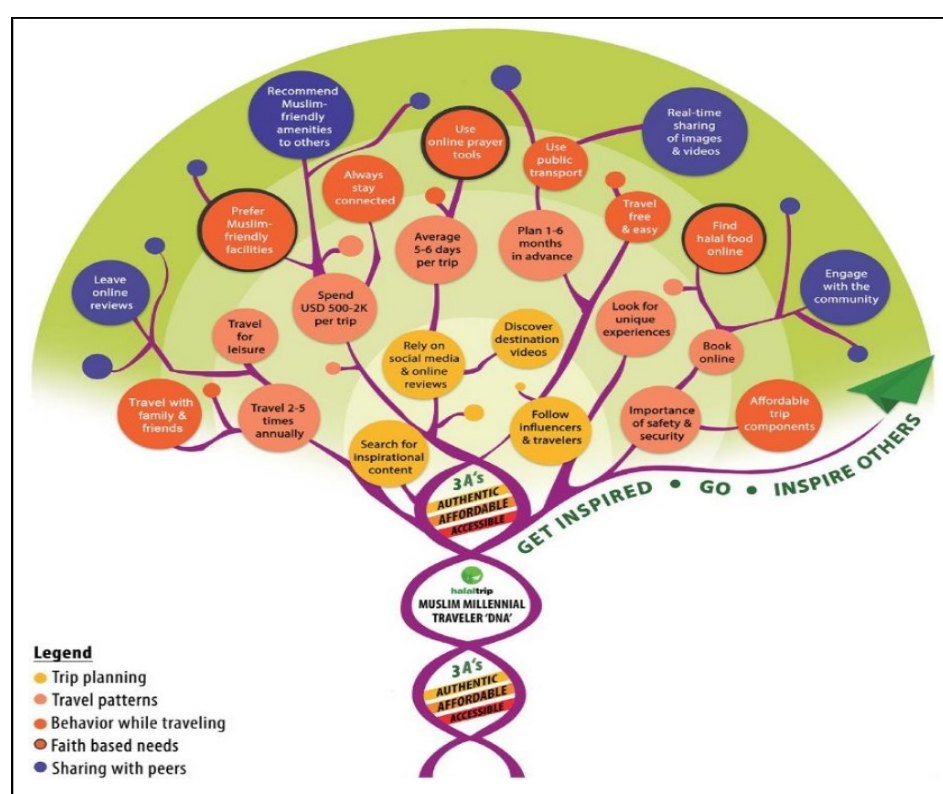


Figure 2: Muslim Millennials Traveller' DNA'
Muslim Millennial Travel Report, 2017

It is reported that MMTs have their own travel needs. Commonly, these travel patterns can be seen in the planning stage, during the travel, and when they share their travel experiences with others, which are called the "Get inspired", "Go", and "Inspire others" phases. With this, stakeholders can easily recognize the Halal tourism market as a means in fulfilling Muslim travellers' demand (Mastercard & HalalTrip, 2017). Figure 2 above shows the Millennial Travel Report 2017, which released Muslim millennial travel trends. It covers overall aspects from pre-trip planning to during-trip and after-trip. During the trip-planning stage, Muslim millennials will search for inspirational content to motivate and serve as references. It also stated that they are relying on social media and online reviews as resources, as these are the most accurate and quickest sources of information a person can get. Plus, they can browse and discover destinations in video form on platforms such as social media, which then increases their satisfaction level as they travel with well-prepared plans. In this digital era, influencers and travellers have become more trustworthy and reliable in promoting real-time online experiences of tourism destinations through mobile devices. Thus, these millennials prefer to believe and are influenced by these social media figures for detailed travel planning. Another fact reported by Battour et al. (2022) is that Muslim women are highly effective in planning trips, regardless of the group they are in, as they are very wise in travel decision-making. Plus, Muslim women tourists are a large community, ranking among the largest groups among Muslim tourists, with 71% travelling with families, 29% travelling in all-female groups, and 28% travelling solo (Mastercard-Crescent Rating, 2019). Therefore, there will be an increase in purchasing power, as many of them are still young, well-educated, and proactive in their workplaces, creating opportunities for entrepreneurs to expand Muslim-friendly tourism services (Devi & Firmansyah, 2019).

METHODOLOGY

Bibliographic analysis

Bibliometric analysis was used in this research to examine bibliographic data on the number of authors, institutions, articles, citations, and countries. Statistical, analytical, and quantitative methods are mainly applied in this research by using past journals and citations to access the literature, a method called Bibliographic analysis has been applied in product mapping and to study the information produced in various fields (Kaushik & Dangwal, 2025), which progressively assesses the efficacy based on the citation and publication outlines of the literature (Vishwakarma & Mukherjee, 2019).

Alternatively, researchers are using bibliometric analysis for several objectives, such as determining trends in journal articles, research mechanisms,

and cooperation patterns, and studying topics in the existing literature (Donthu et al., 2021). This research paper aims to present a bibliometric analysis, including science mapping, and to describe how the mobile consumption element alters the psychological experience of Muslim tourists in fulfilling their faith-based needs. This descriptive analysis includes the field of research, publication year, popular authors by country, document citations, authors' keywords co-occurrence, and authors' citations and co-citations as part of the mapping.

This research used VOSviewer software for co-citation analysis, with the unit of analysis being all keywords found in most discussions of past journals and the author keywords (Chen & Song, 2019). VOS viewer is commonly used for this kind of network analysis (Chen & Song, 2019; Güzeller & ÇeliKer, 2018; Idamokoro, 2025; Viana-Lora & Nel-lo-Andreu, 2022). The author keywords through co-occurrence feature highlighting on which terms are mostly used, popular, and distinguished (Viana-Lora & Nello-Andreu, 2022). The design of this research is presented in Figure 1.

Clarifying keywords

Identifying keywords from the selected paper is the first stage in producing a bibliometric analysis. Keyword identification begins with the separate elements of this research: Muslim faith-based needs, Psychology of experience, and Mobile consumption. Moreover, the last stage is the identification stage, which will combine these elements, as reflected in the main title of this research. Predicted related concepts commonly used in the past literature are used as keywords when searching for bibliographic journals in Scopus. The Boolean operator (OR) and (AND) is used to search for the following keywords in one search. For Muslim faith-based needs elements, the keywords are combined between the probable terms used for Muslim faith-based needs in past journals with related tourism to widen the document search such as "Muslim-friendly need" OR "halal need" OR "Muslim need*" OR "Islamic need" OR "shariah need" OR "religious need" OR "spiritual need" OR "Islamic attributes" OR "sharia motivation" OR "Muslim cultural needs" AND "Travel" OR "tourism" OR "halal tourism" OR "tourist" OR "travelers" OR "pilgrimage tourism" OR "religious tourism" OR "Islam".

For the Psychology of experience element, keywords are combined between the behavior related characters with the related tourism such as "psychology*" OR "behavior*" OR "behavioral" OR "experience*" OR "expectation" OR "motivation" OR "satisfaction" OR "satisfactory" AND ("muslim" OR "religious" OR "halal" OR "islamic") AND "tourists" OR "travel*" OR "traveller*" OR "tourism".

For the mobile consumption element, keywords used are the combination of Muslim tourists' behavioral alteration in consuming mobile, and

such keywords searched are "Muslim" OR "Muslim- friendly*" OR "halal" OR "Islamic" OR "sharia*" OR "religious" OR "Muslim pilgrimage") AND ("travel" OR "tourist*" OR "halal tourism" OR "travellers" OR "musafir") AND ("mobile" OR "mobile app" OR "GPS" OR "navigation" OR "mobile application" OR "digital" OR "GIS" OR "social media" OR "smartphone" OR "website" OR "mobile phone" OR "online" OR "web" OR "virtual.

For overall research elements, keywords used to search for related documents are those that combine the elements of how Muslim tourists consume mobile services in fulfill their faith-based needs and how this affects their psychological experiences. These keywords are "halal" OR "Muslim" OR "Muslim-friendly" OR "Islamic" OR "pilgrimage" OR "religious" AND "psychology*" OR "tourist behavior*" OR "tourist behavioral" OR "travel experience*" OR "tourist expectation" OR "tourist motivation" OR "tourist satisfaction" OR "tourist satisfactory" AND "mobile" OR "mobile app" OR "GPS" OR "navigation" OR "mobile application" OR "digital" OR "GIS" OR "social media" OR "smartphone" OR "website" OR "mobile phone" OR "online" OR "web" OR "virtual experience" OR "technology" OR "facebook" OR "instagram" OR "flickr" OR "blog" OR "whatsapp" OR "Augmented reality" OR "AI". This identification search was conducted in February 2024, and only documents published from 1990 to 2024 were considered for this analysis.

Initial results

Given the vast number of databases worldwide in this analysis, this research focuses on the Scopus database for bibliographic analysis. Overall, 1,684 related journals were filtered during the initial search for this research, which were then refined using parameters outlined in the subsequent main elements of this research: Muslim faith-based needs, the psychology of experience, and mobile consumption.

Reclarifying the initial research

The initial results were refined to select journals in English only to cover international papers and in produce more specific author keywords through bibliometric mapping. As a result, of the total of 1,684 journals related to this research title, 67 are primarily related to Muslim faith-based needs, 261 are primarily on the psychology of experience, 969 are primarily on mobile consumption, and the rest are related to a combination of these elements, as reflected in the whole research title. The extracted journals are filtered to a limited range of years from 1990 to the newest year, 2024.

Limitations of Method

This study has several methodological limitations that should be acknowledged. First, the bibliometric data were drawn only from journals indexed in a single database. They were further refined through a manual filtering process, which may have excluded relevant but less visible publications and introduced selection bias. Second, the analysis was restricted to articles published in English, so important work in other languages, especially from non-English-speaking Muslim-majority countries, may not be represented. These limitations mean that the findings should be interpreted as indicative of broader patterns rather than fully exhaustive of all scholarship on Muslim tourists' mobile consumption and faith-based needs.

Quality Components

Based on the responsibilities of the JMB and the MC, the COB evaluates and ranks each strata scheme according to the components of quality management. The quality components include (i) establishment and operation of management bodies, (ii) finance, (iii) maintenance, (iv) risk security management, and (v) population well-being. The evaluated strata schemes are rated on a 5-star scale, with 5 stars representing the highest-quality management. Based on the published COB Annual Reports, the following Table and Figure show the distribution of strata schemes by star rating.

RESULTS AND DISCUSSION

Area of research

The number of journals extracted is represented in Table 1. From the total number of journals extracted from the Scopus database, the highest number is from Islamic marketing, with 145 journals; 65 are from religious tourism and pilgrimage, and 31 are from the sustainability field. It indicates that scholars discussing the topic related to this research are mostly from these fields.

Table 1: Area of research

Area of Research	No of Journal	Percent (%)
Advanced Science Letters	13	0.77%
Current Issues in Tourism	22	1.31%
Geojournal of Tourism and Geosites	12	0.71%
International Journal of Innovation, Creativity and Change	14	0.83%
International Journal of Islamic and Middle Eastern Finance and Management	12	0.71%
International Journal of Religious Tourism and Pilgrimage	65	3.86%

Area of Research	No of Journal	Percent (%)
International Journal of Tourism Cities	13	0.77%
International Journal of Tourism Research	23	1.37%
ISRA International Journal of Islamic Finance	14	0.83%
Journal of Asian Finance, Economics and Business	10	0.59%
Journal of Destination Marketing and Management	11	0.65%
Journal of Environmental Management and Tourism	21	1.25%
Journal of Environmental Treatment Techniques	10	0.59%
Journal of Islamic Accounting and Business Research	25	1.49%
Journal of Islamic Marketing	145	8.62%
Religions	12	0.71%
Sustainability (Switzerland)	31	1.84%
Tourism Management	15	0.89%
Tourism Management Perspectives	18	1.07%
Tourism Review	15	0.89%
WSEAS Transactions on Business and Economics	12	0.71%

Year of publication

Table 2 shows the number of journals from 1990 to 2024. The data shows an increasing interest among scholars from year to year. Table 2 and Chart 1 show that the number of publications on related topics to this research from 1990 to 2006 is quite stagnant (fewer than 10), but then slowly increases after 2007. However, there is a decrease in the number of publications from 2020 to 2021, possibly due to the pandemic, which affected the global tourism market. Then, the publication number increased back to its 2022 levels in 2023, as the global economy healed slowly from the pandemic, resulting in the tourism market bouncing back due to demand.

Table 2: Year of Publication

Years	No. of Journals	Percent (%)
1989–1994	10	0.60%
1995–1999	7	0.42%
2000–2004	13	0.78%
2005–2009	51	3.03%
2010–2014	134	7.96%
2015–2019	421	25.01%
2020–2024*	1,047	62.19%
Total	1,683	100%

*Note: 2024 data is incomplete as it represents the partial year.

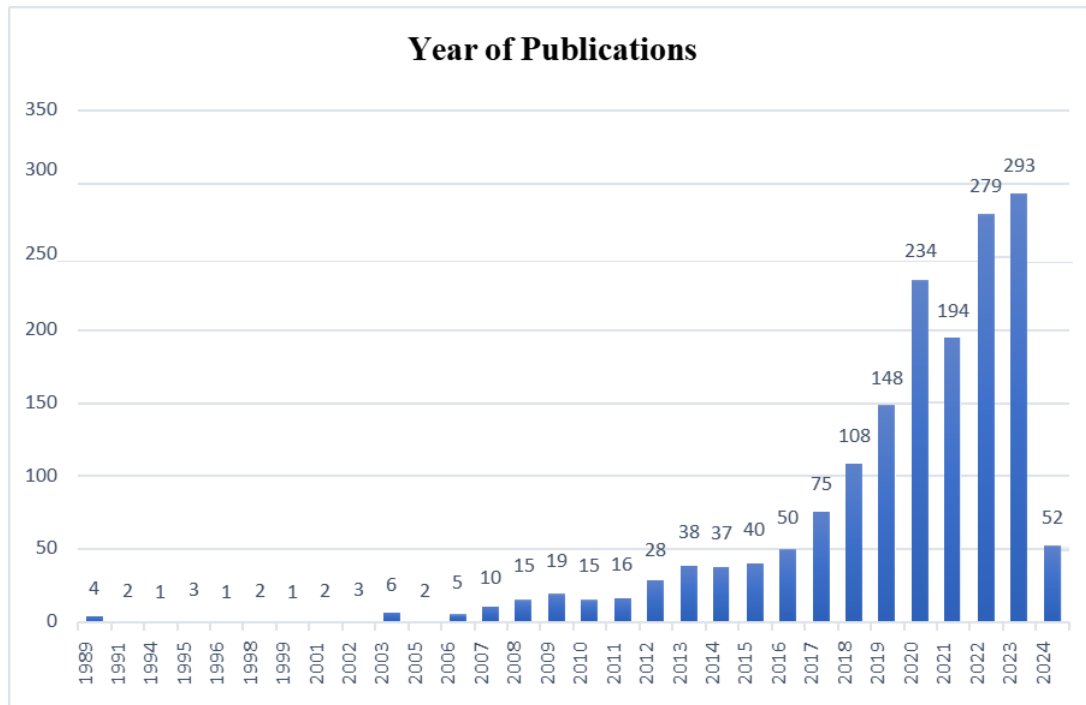


Chart 1: Year of publications

Co-occurrence of author keywords

The dominant keywords were analyzed using VOSviewer's co-occurrence functionality, which produced a graphical overview of the authors' keywords, as shown in Figure 3. The main keywords were analyzed separately according to the main elements of this research to identify the common terms used by scholars in their past journals and the relations among their discussions.

Muslim Faith-Based Needs

Co-occurrence analysis using keywords and the most frequently used terms by authors creates a topic grid and its associations (Merigó et al., 2020). Through this bibliometric analysis, keywords and terms are generated based on term patterns used by past scholars from 1990 to 2024 that are related to this research. Figure 3 below shows that Muslim faith-based needs are most discussed through two main terms, "Islamic attributes" and "Spirituality". The journals discussing Islamic attributes related to travel motives, tourists' satisfaction, and motivation. Islamic attributes: discussing in more detail the needs of a Muslim, and some related aspects, such as Halal tourism and Islamic tourism. Halal food and respectful behaviour, Islamic morality, washroom facilities, entertainment &

worship, Islamic hotel environment, and destination selections are crucial needs when Muslim tourists travel in non-Muslim destinations (Battour et al., 2013). Meanwhile, "Spirituality" discusses general research topics that cover religious aspects, including Islamic needs related to this research, as well as medical aspects such as health, but not travelling. However, these two terms are interconnected by a fine line in the religious aspect, where both share the same religious needs, cultural elements, and the basis of the research topics discussed by these scholars, which are

Figure 3 displays the co-occurrence network of author keywords related to Muslim faith-based needs in tourism. It highlights the central roles of "Islamic attributes" and "spirituality" and their connections to concepts such as travel motives, satisfaction, motivation, halal tourism, and Islamic tourism. It indicates how faith-based needs are framed in the literature.

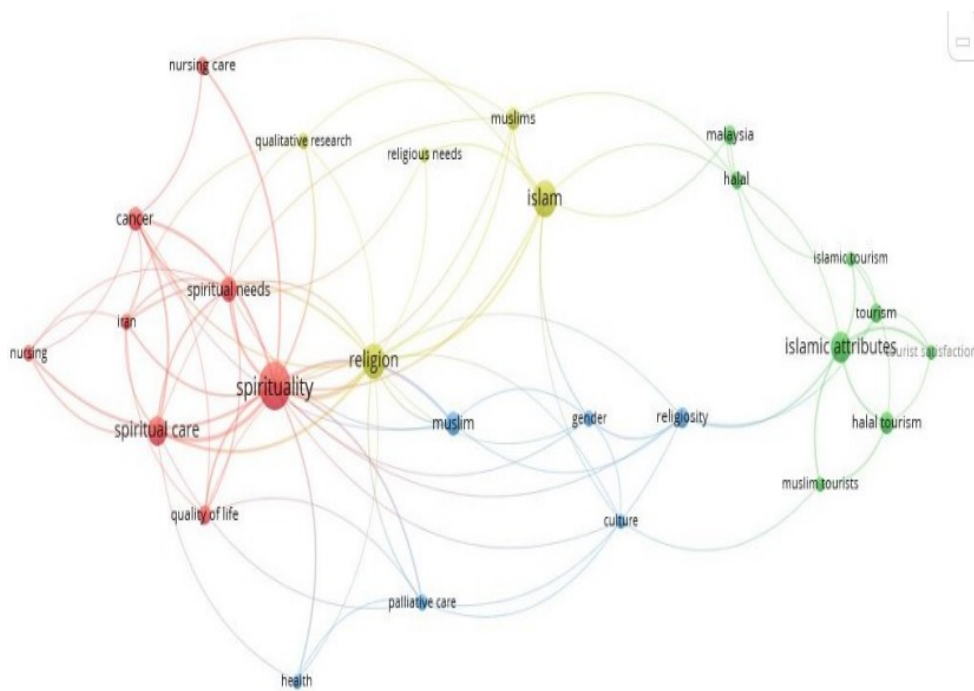


Figure 3: Bibliometric map of Muslim faith-based needs.

Psychology of Experience

Figure 4 presents the co-occurrence network of keywords associated with psychological experience in tourism, including religious and pilgrimage-related

terms. It shows how constructs such as satisfaction, expectations, motivation, and risk perceptions cluster around religious and pilgrimage tourism, providing a basis for linking psychological experiences to Muslim tourists' travel behaviour.

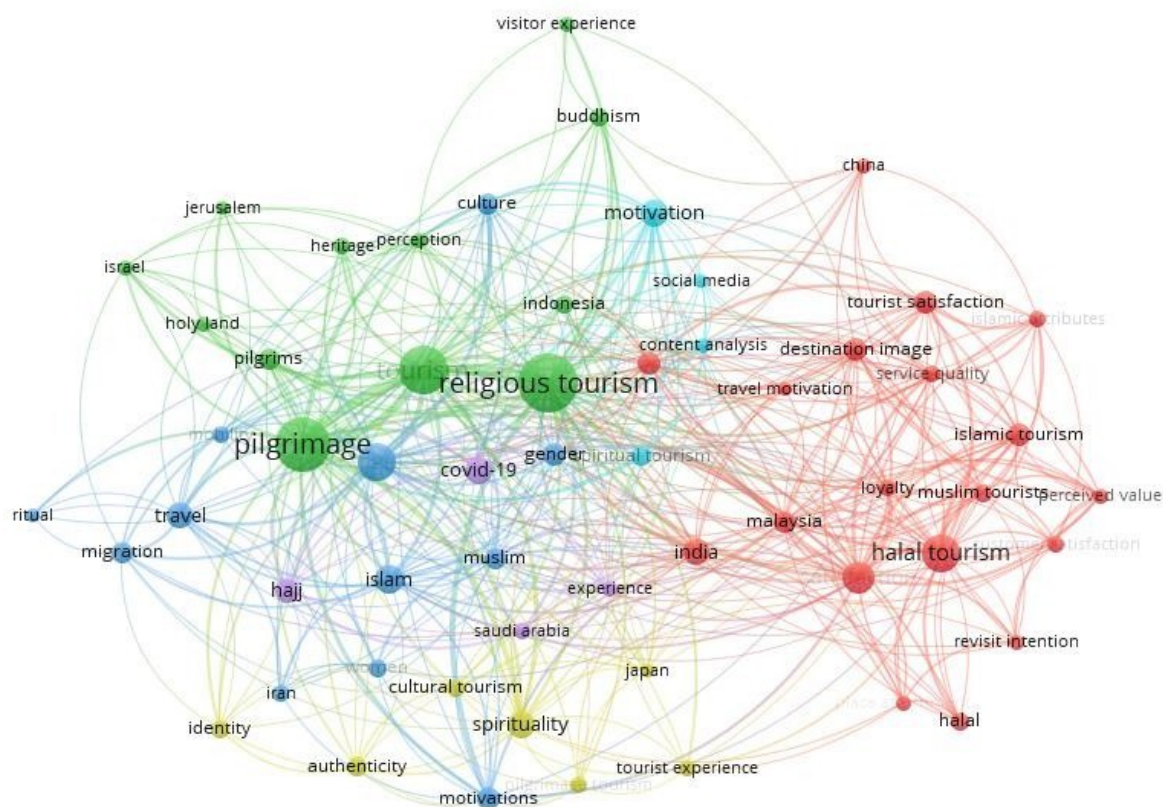


Figure 4: Bibliometric map of psychology of experience in tourism.

In Figure 4, many scholars discuss the psychology of experience during travelling using the terms "Religious" and "Pilgrimage," which are general for all types of religious activities, including Islam. Halal tourism is mostly discussed in terms of pilgrimage and religious tourism, but it actually focuses more on Muslim tourists' travel satisfaction. Additionally, Halal tourism, often referred to as Islamic or Muslim-friendly tourism, is a new concept in the tourism industry that offers exciting opportunities to boost economic growth. In fact, Halal tourism is closely related to 17 Sustainable Development Goals (SDGs) that contribute to sustainability. Hence, it is crucial to clarify misconceptions, especially among non-Muslim tourists, to help them better understand the segments (Uula, 2025).

In Figure 5 below shows that, starting from the early 90s, two keywords were commonly discussed in past tourism publications, with scholars mostly focusing on risk-related diseases and mobility. The keyword mobility appeared because it was an era of human mobility as per stated by Kaufmann et al. (2004), based on previous studies conducted by Riaño et al. (2022), presented the typology of human mobility, which consists of four kinds of movements: residential mobility (with reference to residential cycle); migration (international and interregional immigration and emigration); travel (tourism and business travel); daily mobility (daily journeys such as commuting). These kinds of mobility increase the risk of disease spreading. This phenomenon is when people travel for medical care, and the study of travel medicine may have expanded somewhat by the 1990s (Fagence & Kevan, 1998).

Then, ten years later, from 2000 to 2010, the tourism keyword pattern shows new tourism segments and tourists becoming more aware of expectations and perceptions of physical activities and service qualities. A few past scholars who discussed tourists' expectations during these years, such as Ratih and Noer (2024), found a positive relationship between tourist satisfaction and revisit intention.

According to the literature above, many scholars offer different definitions of satisfaction. This study considers satisfaction to be an evaluation of the actual cognitive process in relation to the individual's expectations and experiences. This evaluation is satisfactory or unsatisfactory. Another scholar, namely Szymanski and Henard (2001), classifies the satisfaction method as a holistic concept, measuring satisfaction with a single question to understand the customer's overall attitude towards products and services. This condition proves that tourists' perceptions and behaviors regarding service quality have been discussed for a long time, since the early 2000s.

Then, the keyword trends keep revolving in the next 14 years. Mobile devices have been blooming over these years and have seen increasing demand among tourists, including Muslim tourists, during travel. As stated by Tussyadiah (2015), the capability of mobile technologies as a medium for communication in sharing information has led to widespread adoption of smartphones in the tourism industry as a way for them to find mobile guides and location-based services. With highly developed social media and virtual realities year to year, scholars are also getting up to date in their publishing, discussing how consuming mobile services can alter their travel behaviours. The widespread use of smartphones and the accessibility of information services can potentially change the entire travel experience by altering the nature and role of travel planning, thereby revolutionizing the very meaning of tourism and transforming both tourists and places (Gretzel et al., 2024).

Figure 5 illustrates the evolution of key psychological and health-related terms in tourism research from the early 1990s to the 2010s. It traces the shift from topics such as mobility and travel-related diseases to themes of expectations, service quality, and satisfaction, and finally to mobile technologies and digitally mediated experiences.



Figure 5: Temporal evolution of psychological-experience keywords.

Mobile Consumption

In Figure 6 shows that journals discussed under the term "pilgrimage" in relation to mobile consumption of Muslim or Islamic travels. The journals discussing shariah finance and banking were mostly published in Indonesia, Saudi Arabia, and the UAE. The second most discussed topic in mobile consumption among Muslim tourists is hajj or umrah, for which mobile services are developed through apps to ease hajj and umrah performers in performing their activities, including visits to religious sites. The Android platform for mobile applications is cost-effective, and the open-source model is very popular among all generations today (Nurhayati et al., 2020). This application also helps Android device users learn, understand, and perform the Hajj and Umrah rituals perfectly (Neidhardt & Wörndl, 2020). This condition demonstrates the need to develop better mobile apps for pilgrims to use during hajj and umrah. Indonesia, the UAE, and Saudi Arabia are participating in app development through their scholarly journals, as they see pilgrimage as part of the tourism niche, and Saudi Arabia is initiating this to expand its tourism niche. Indonesia also can be seen progressively developing their tourism market align with technology updates especially after the pandemic era via mobile apps such as social medias.

Figure 7 shows that the pattern of mobile consumption over the years has changed drastically, aligning with the evolution of telephone technology. The

first ten years of the patterns (1990-1999) show that past scholars discussed mobile computing extensively as cellphones became popular in the 90s and early 2000s (Moss, 2021), which many are still unfamiliar with and are getting used to computers. Within the next 10 years, scholars will shift their focus to mobile communication and mobile commerce. M-commerce history began in the early 2000s, when retailers offered mobile device add-ons such as ringtones, games, screen savers, and wallpapers. By 2009, the offers for mobile phones had evolved significantly. Specifically, most consumers who purchased goods through m-commerce channels in the United States: 58% purchased digital content such as music or apps, 51% consumer electronics, 37% computers, laptops, or related equipment, 36% on books, 31% on apparel, and even 20% on jewelry (Salih & Almutaa, 2023). Scholars have extensively discussed M-commerce until the end of 2020, when they shifted their focus back to mobile apps, location-based services such as Waze and Google Maps, augmented reality (AR), route planning, social media consumption, Bluetooth features, mobile learning technology, GPS, and mobility activities in tourism. Until now, mobile apps and location-based services have mostly been discussed in past journals, as they are heavily relied on by Muslim travellers during travel (Mastercard-CrescentRating, 2022).

Figure 6 shows the keyword co-occurrence network related to mobile consumption in the context of Muslim and Islamic travel. It emphasizes clusters around pilgrimage, hajj and umrah applications, shariah finance and banking, and location-based services, illustrating how mobile technologies are embedded in Muslim travel practices.

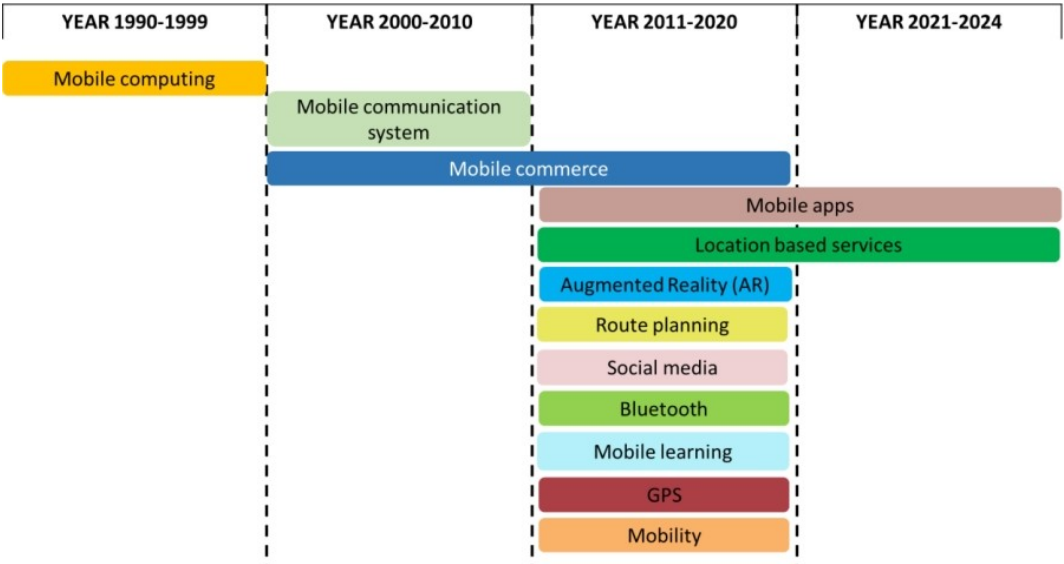


Figure 7: Temporal patterns of mobile consumption keywords.

Interrelation Between Fulfillment of Faith-Based Need and Psychological Experience in Mobile Consumption

Figure 8 integrates the three main keyword networks to show how Muslim faith-based needs, psychological experience, and mobile consumption converge within the broader field of halal, Islamic, and religious tourism. It reveals shared clusters and bridging terms that clarify how mobile services are increasingly used to satisfy faith-based needs and shape Muslim tourists' travel experiences.

sharing their own opinions, and leave comments on past Halal related travel experiences they had before comparing to older Muslim tourists. This shows that they are very attached to and rely on new technologies (Kurnia et al., 2024), and they are simply comfortable using their smartphones for any purpose throughout the travel planning stages (Femenia-serra et al., 2018).

Young Muslim tourists prefer to download apps that guide them before performing their faith-based practices, such as prayer apps that provide adhan notifications, prayer times, qibla direction, Quran and hadith reading, and Halal-locate eateries and places of worship, especially when they are in Muslim-majority countries (Ichwan et al., 2024). This condition explains the relations of social media and Islamic marketing in the bibliometric map. Occasionally, these apps have made it easier for them to travel in comfort and have enabled them to access additional information from past Muslim tourists' comments in each app (Salih & Almutaa, 2023). Consuming mobile services, such as social media and marketing, affects travel behavior in terms of perceived value, satisfaction level, revisit intention, and destination loyalty, and this is strongly interconnected through social media, as shown in the bibliometric map above.

CONCLUSION

Rapid transformation in tourists' technological, social, and consumer behaviour in the tourism segment is proving to be a powerful factor in influencing authorities and the private tourism sector to adopt mobile services for Muslim tourists' consumption during travel. The aim is not only to enhance or facilitate their travel experience but also to obtain optimal economic advantages. Indeed, the contemporary Muslim needs during travelling set a new representative, in line with the new global era in which religious elements intersect with the mechanisms of social networking technologies in global capitalism.

However, establishing the individual motivations in fulfilling their Muslim faith-based needs through mobile consumption needs to be marked up in terms of effort from all involved stakeholders, from the scholars to give clear guides to the tourism authorities as policymakers, until the tourism business owners implement the actions needed. Mobile consumption among tourists is growing, and Muslim tourists should be included in using online services as much as other tourists do during their travel time. It is clear that a new era has emerged: very modern Muslim tourists. To conclude, this research has revealed that interconnection brings both advantages in terms of access to information and security, and Muslim faith-based needs determine Muslim tourists' travel behavior. This condition will influence their daily lives before and after returning from their trips, which may, in turn, affect their expectations for future trips.

ACKNOWLEDGEMENT

The authors would like to express their deepest gratitude to the Ministry of Higher Education Malaysia for providing financial support under the Fundamental Research Grant Scheme (FRGS) for the project ID (FRGS/1/2023/WAB01/UIAM/02/1). We sincerely appreciate this funding, which has significantly advanced our research. We are also grateful to the International Islamic University Malaysia (IIUM) for its continuous support and facilitation throughout this project. Special thanks to all team members, collaborators, and participants for their valuable contributions and commitment. This research would not have been possible without the dedication and efforts of everyone involved, and we look forward to the meaningful outcomes this work will yield.

ETHICAL STATEMENT

REFERENCES

- Abdullah, S., Hussain, N. H. M., Hashim, I. C., & Hashim, H. (2024). Digitizing Tree Inventory Using GIS for Effective Landscape Monitoring in Puncak Iskandar, Perak, Malaysia. *Planning Malaysia*, 32(3), 167–186. <https://doi.org/https://doi.org/10.21837/pm.v22i34.1610>
- Baharuddin, M. N., Bahardin, N. F., Nawawi, A. H., Harun, S. N., & Hussaain, A. H. (2024). Digitalisation in Built Heritage Towards Promoting A Conservation Management Plan by National Heritage Act 2005: Assessing The Difficulties in Managing Data Information During Conservation Process of Heritage Building in Malaysia. *Planning Malaysia*, 22(6), 30–44. <https://doi.org/https://doi.org/10.21837/pm.v22i34.1611>
- Battour, M., Battor, M., & Bhatti, M. A. (2013). Islamic Attributes of Destination: Construct Development and Measurement Validation, and Their Impact on Tourist Satisfaction. *International Journal of Tourism Research*, 113(November 2012), 101–113. <https://doi.org/10.1002/jtr>
- Battour, M., & Ismail, M. N. (2016). Halal tourism: Concepts, practises, challenges and future. *Tourism Management Perspectives*, 19, 150–154. <https://doi.org/10.1016/j.tmp.2015.12.008>
- Brown, G. (2006). Tourism and Pilgrimage: Paying Homage to Literary Heroes. *International Journal of Tourism Research*, 113(November 2012), 101–113. <https://doi.org/10.1002/jtr>
- Chaney, D., Touzani, M., & Ben Slimane, K. (2017). Marketing to the (new) generations: summary and perspectives. *Journal of Strategic Marketing*, 25(3), 179–189. <https://doi.org/10.1080/0965254X.2017.1291173>
- Chen, C., & Song, M. (2019). Visualizing a field of research: A methodology of systematic scientometric reviews. *PLoS ONE*, 14(10). <https://doi.org/10.1371/journal.pone.0223994>
- Devi, A., & Firmansyah, I. (2019). Developing Halal Travel and Halal Tourism To

- Promote Economic Growth: a Confirmatory Analysis. *Journal of Islamic Monetary Economics and Finance*, 5(1), 193–214. <https://doi.org/10.21098/jimf.v5i1.1054>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133(March), 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Fagence, M., & Kevan, S. (1998). Migration, Recreation and Tourism: Human Responses to Climate Differences. In *Human Bioclimatology* (pp. 133–160). https://doi.org/10.1007/978-3-642-80419-9_6
- Faiza, K., & Michelle, C. (2017). The “Halalification” of tourism. *Journal of Islamic Marketing*, 8(4), 558–577. <https://doi.org/https://doi.org/10.1108/JIMA-01-2016-0001>
- Femenia-serra, F., Neuhofer, B., & Ivars-baidal, J. A. (2018). Towards a conceptualisation of smart tourists and their role within the smart destination scenario. *The Service Industries Journal*, 39(2), 1–33. <https://doi.org/https://doi.org/10.1080/02642069.2018.1508458> Towards
- Gretzel, U., Fesenmaier, D. R., & O’Leary, J. T. (2024). *ConsumerBehavior_Gretzel_Fesenmaier_OLeary Revised1b*.
- Güzeller, C. O., & ÇeliKer, N. (2018). Bibliometric analysis of tourism research for the period 2007-2016. *Advances in Hospitality and Tourism Research*, 6(1), 1–22. <https://doi.org/10.30519/ahtr.446248>
- Ichwan, M. N., Amin, F., Khusairi, A., & Andrian, B. (2024). Digitalization and the shifting religious literature of Indonesian Muslims in the Era of Society 5.0. *Islamic Communication Journal*, 9(2), 245–266. <https://doi.org/10.21580/icj.2024.9.2.22515>
- Idamokoro, M. (2025). An Evaluation of Childhood Overweight Studies from South Africa: A Bibliometric Review from 2003-2023. *OnLine Journal of Biological Sciences*, 25(2), 343–356. <https://doi.org/10.3844/ojbsci.2025.343.356>
- Jaelani, A., Firdaus, S., Sukardi, D., Bakhri, S., & Muamar, A. (2021). Smart City and Halal Tourism during the Covid-19 Pandemic in Indonesia. *Revista Rosa Dos Ventos - Turismo e Hospitalidade*, 13(4 covid 19), 1–29. <https://doi.org/10.18226/21789061.v13i4p29>
- Kaufmann, V., Bergman, M. M., & Joye, D. (2004). Motility: Mobility as capital. *International Journal of Urban and Regional Research*, 28(4), 745–756. <https://doi.org/10.1111/j.0309-1317.2004.00549.x>
- Licsandru, T. C., & Cui, C. C. (2019). Ethnic marketing to the global millennial consumers: Challenges and opportunities. *Journal of Business Research*, 103(February), 261–274. <https://doi.org/10.1016/j.jbusres.2019.01.052>
- Mastercard-Crescent Rating. (2019). *Muslim Women in Travel 2019*. <https://www.crescentrating.com/reports/muslim-women-in-travel-2019.html>
- Mastercard-CrescentRating. (2022). *Global Muslim Travel Index 2022 (GMTI 2022)*. <https://www.crescentrating.com/reports/global-muslim-travel-index-2025.html>
- Mastercard & HalalTrip. (2017). *Muslim Millennial Travel Report 2017 (MMTR2017)*. <https://www.halaltrip.com/muslim-millennial-travel-report/>
- Merigó, J. M., Mulet-Forteza, C., Martorell, O., & Merigó-Lindahl, C. (2020). Scientific

- research in the tourism, leisure and hospitality field: a bibliometric analysis. *Anatolia*, 31(3), 494–508. <https://doi.org/10.1080/13032917.2020.1771602>
- Neidhardt, J., & Wörndl, W. (2020, January 1). Workshop on Recommenders in Tourism (RecTour). *Information and Communication Technologies in Tourism 2020*. <https://doi.org/10.1007/978-3-030-36737-4>
- Nurhayati, N., Nanang, H., Faujiah, S., & Busman, B. (2020). Mobile Application Tutorial Hajj and Umroh on Android Smartphone. *Proceedings of the 2nd International Conference on E-Learning and E-Technologies in Education*. <https://doi.org/10.4108/eai.2-10-2018.2295290>
- Pew Research Center. (2017). *The changing global religious landscape*. <https://www.pewresearch.org/religion/2017/04/05/the-changing-global-religious-landscape/>
- Preko, A., Mohammed, I., & Ameyibor, L. E. K. (2020). Muslim tourist religiosity, perceived values, satisfaction, and loyalty. *Tourism Review International*, 24(2–3), 109–125. <https://doi.org/10.3727/154427220X15845838896341>
- Priyatmoko, R., & Maulana, A. (2022). Halal Tourism And Its Misconceptions: A Study on The Rejection of Indonesian Non-Muslim Destinations. *Dinar: Jurnal Ekonomi Dan Keuangan Islam*, 9(1), 74–87. <https://doi.org/10.21107/dinar.v9i1.13976>
- Riaño, Y., Mittmasser, C., & Sandoz, L. (2022). Spatial Mobility Capital: A Valuable Resource for the Social Mobility of Border-Crossing Migrant Entrepreneurs? *Societies*, 12(3). <https://doi.org/10.3390/soc12030077>
- Salih, A., & Almutaa, A. (2023). *Mobile E-commerce: The Growing Influence of Smartphones on Online Shopping*. 2023(1), 146–154.
- Tiago, M., & Studies, M. (2013). The influence of teenagers on a family's vacation choices. *Tourism & Management Studies*, 9(1), 28–34.
- Uula, M. M. (2025). A Note on Halal Sustainable Tourism. *Halal Tourism and Pilgrimage*, 4(2). <https://doi.org/10.58968/http.v4i2.615>
- Viana-Lora, A., & Nel-lo-Andreu, M. G. (2022). Bibliometric analysis of trends in COVID-19 and tourism. *Humanities and Social Sciences Communications*, 9(1), 1–8. <https://doi.org/10.1057/s41599-022-01194-5>
- Vishwakarma, P., & Mukherjee, S. (2019). Forty-three years journey of Tourism Recreation Research: a bibliometric analysis. *Tourism Recreation Research*, 44(4), 403–418. <https://doi.org/10.1080/02508281.2019.1608066>
- Yuen, Y. Y., Yeow, P. H. P., & Lim, N. (2015). Internet banking acceptance in the United States and Malaysia: a cross-cultural examination. *Marketing Intelligence & Planning*, 33(3), 292–308. <https://doi.org/10.1108/MIP-08-2013-0126>

Received: 14th February 2025. Accepted: 8th August 2025