

Digital Technology Praxis and Sharing Economy in the Hospitality and Tourism Industry

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Abstract— Introduction: The purpose of this study is to provide insights into emerging deployment of digital technology practices and sharing economy platform in the hospitality and tourism industry. As the digital technology displaces the traditional customer services and experience economy employees' work, it is imperative for those affected to understand the opportunities and threats of digital technology innovation on hospitality and tourism industry. **Methods:** Content analysis was utilized on relevant extant literature related to digital technology, disruptive digital innovation, robotics and artificial intelligence, sharing economy, collaborative economy, gig economy, platforms economy and fourth industrial revolution (IR 4.0) or industry 4.0. We identified 437-keyword counts, similar keywords were classified, combined and analysed. **Results:** Findings indicate digital technology praxis and sharing economy provide several opportunities in the management and advancing customer's experience in hospitality and tourism industry. These opportunities include meeting customer expectation, convenience and memorable experience, cost saving and staff skills development. Finding also suggests the application of robotics artificial intelligence (AI) system in the hotel industry. Specifically, AI assists hotel staff in creating a better quality service oriented for their guests. Findings uncovered threats such as increase in the number of unemployment rate, rising cost of operation due to frequent changes in technology, societal dystopia, safety and security concern, loss of economic and financial revenue to the government, prolong service failure and unsatisfactory service recovery. **Conclusion:** The novelty of this study is that hospitality and tourism industry service providers are not exempted from the consequences of digitalization of hospitality and tourism business operations.

Keywords— Digital technology, sharing economy, opportunities, threats, hospitality and tourism industry

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I. Introduction

Digital technology and sharing economy in hospitality and tourism industry has been a subject of academics, policy makers and industry practitioners' interests in recent times. The emergence of internet and mobile technologies as evolved into new services such as e-business, digital marketing, e-commerce, e-health, digital learning, virtual reality and e-tourism (1). The concept of sharing economy (disruptive innovation) provides smaller, simpler, cheaper and more convenient innovative services driven by digital technology in creating unique satisfying customers' experience (2). In hospitality and tourism industry, digital technology and sharing economy are viewed as disruptive innovation concept using online platforms (2,3).

Disruptive innovation can be traced to the definition of disruptive technology as 'a technology that changes the bases of competition by performance metrics along which firms compete' (4). The concept of disruptive technology was modified and extended to be more holistically including disruptive innovation (5). The term disruptive innovation is often misapplied or misinterpreted to any exceptionally novel product or service that 'disrupts' the market in a more colloquial sense (2). Disruptive digital innovation products and services patronage does not indicate superior performance, in fact it actually underperforms in comparison to existing competitors' primary attributes and offerings (5).

In other words, disruptive innovations are inferior "good enough" products and services when compared with the well-known offerings from existing competitors; however, the unique selling attributes of disruptive innovation attributes are attractive to consumers in terms of value proposition (2). The purpose of this research is to provide insights into the opportunities and threats of digital technology and sharing economy in hospitality and tourism industry. To achieve this purpose, this study asks one research question that says: What are the opportunities and threats of digital technology praxis and sharing economy in hospitality and tourism industry?

II. Literature Review

A. *Digital Technology*

With the rise of new technological development, from the high robotics to the smart technologies, it has highly impacted on job migration caused by globalization, but also job losses are increasing, same goes to tourist region's advance development ability. These have caused tourist destination's stakeholders the need to pay attention on the establishment of new business concepts, which contain economy sustainability, sharing economy and the evolution of the fourth industrial revolution (6). The world is developing a social operating system that is unprecedented. It has become a solution for the local problem in an international issue. The closer connections move the social operating system from an individual's direction to the peers' power in a teamwork position (7).

B. *Mobile Technology*

Most shared economy application runs successfully on Mobile devices. The use of mobile technology during trips on shared economy platform like Airbnb, Uber and Grab can influence rider's en-route activities, informing them of any spontaneous deviations such as alternative travel route, duration, walking distance and accommodation features. For example, previous study indicates that the use of mobile technology during travel can influence the travel experience by enabling a traveler to obtain a better "sense" of the place, through reviews such shared information, testimonials, and perceived attraction on the platform, and thus can have both negative and positive impacts on the travel experience (8).

C. *Sharing Economy in Hospitality and Tourism Industry*

Sharing economy is basically a crowded-based capitalism due to transfer of ownership through on-demand access (9). Furthermore, "the sharing economy refers to individuals who intend to share temporarily with tourists unused or underutilized resources they own (e.g. house or car) or activities they undertake (cooking meals, or undertaking an excursions" (10). Recent study highlights different terms used to describe sharing economy, these include collaborative consumption, collaborative economy, peer to peer (P2P) sharing of accessibility for the utilization of idle products, services and economic assets by consumers (11).

Notably, other studies describe sharing economy as gig economy and platform economy (12); and as "the monetization of underutilized assets that are owned by service providers (firms or individuals) through short-term rental" (13). Sharing economy platform enables rentals services the resources or assets should be owned by the service enabler as it promotes peer-to-peer (P2P) economic systems (13). Sharing economy in hospitality and tourism have become as one of the economic sectors where sharing economy has

recorded a tremendous growth where home owners or hosts share their homes with guests and tourists, drivers share their car with riders or commuters, visitors (14). The ultimate goals of guests, visitors or tourists alike is to have service delivery system that will enhance sustainable tourism, authentic tourism and memorable experience, and better value for their hard earn money (14, 15) It has been argued that sharing economy works on the triadic business model setting which comprises of 3S namely, service provider, service enabler and service user (consumer) (13). The current online platforms are providing some of the community's needs and wants urgently, especially for the residents in urban areas. These platforms include Airbnb, Uber, Grab, robotics and Artificial Intelligence (AI).

D. *Airbnb*

Airbnb started in 2008 in San Francisco USA (16). Airbnb is a platform that provides travel accommodation and a pioneer of the sharing economy from the context of hospitality and tourism. Airbnb has served over thirty million customers since 2008 when it entered into the accommodation sector of the hospitality without owning or building a single room (16). Airbnb performance experienced growth in its revenue continuously as of end of first half of 2017. Airbnb valuation stood a robust sum of US\$31 billion (17). Airbnb as a sharing disruptive peer-to-peer platform presents current and future threats to the growth and sustainability of the hotel industry that are notably characterized with fixed operating costs (16). The core strength of Airbnb is its ability to develop unique value propositions for its customers. For example, Airbnb provides attributes such as home benefits, novelty and authentic travel experience to some extent to customers in comparison with the established traditional hotel (17).

E. *Uber and Grab (South East Asia)*

Uber, a platform-based transportation network company was established in 2009 which is headquartered in San Francisco, California (18). Uber has been applauded for allowing more transportation services options that are affordable and easily accessible as compared to normal taxis. Extant literature work shows that Uber has brought about creative destruction (18). Likewise, Uber is viewed as a disruptive innovation to the existing taxi (transport or mobility) service industry (19). Unlike normal taxis, Uber ride prices are substantially lower due to how it is subsidized by investors during the infancy period of such start-ups (20). Grab Car was established in June 2012 as a ride sharing app and also provided several transport services, for example like cars and bikes. According to a research on social impact study at the University of Cambridge MBA Program, Grab Car is one of the leading e-hailing rides (mobility service providers) sharing platform established in Southeast Asia, has brought much positive social impact to drivers and passengers (21).

F. Robotics and Artificial Intelligence

The concept of artificial intelligence as a technological support is often misconceived as a replacement for human resources. In this 21st century, it is imperative for organisations to incorporate modern technological innovation into their business operations in order to remain in business and grow their revenue streams (22). Artificial intelligence has been applied in different industries and business intelligence processes (1). The question to be asked is that: Is the development of computer systems (AI) able to perform tasks that basically require human intelligence? (1). To answer this question, it has been suggested that the adaptation of artificial intelligence in the hospitality industry is promising and capable of transforming its processes, services and facilities using AI-powered robotics (22). A cursory look at an intelligent hotel that surpasses customer expectations and creates ‘wow’ experience is the strategy that digital technology innovation brought to the hospitality, tourism and events management industry. These views have been corroborated that there are certain attributes that make modern hospitality provider intelligent especially the hotels industry namely: travel experience enhancers, concierge robots, automatic data processing (machine learning) digital assistance, and voice-activated services (22). An example is that when a robot takes the characteristic of a physical phenotype of a person, it showed that people engaged longer with the robot as compared to a normal robot (23). With globalisation and the tourism industry booming, such artificial intelligence (AI) will lower the cost of production for the firm and allow for better convenience for the consumers and the companies themselves.

III. Methods

A. Samples

An extensive review of literature work was conducted. For this study, the researchers researched abstracts, key words, titles on digital technology, disruptive digital innovation, robotics and artificial intelligence, sharing economy, collaborative, economy, gig economy, platforms economy, and fourth industrial revolution (IR 4.0) or industry 4.0. In addition, smartphone technology, social media, internet and mobile applications, business-to-business (B2B), peer to peer (P2P), and business-to-customer (B2C) from the perspective of hospitality, leisure, travel and tourism, and events management were reviewed. Specifically we focused attention on Airbnb, Uber, Grab, robotics and artificial intelligence.

Data collections were sourced from EBSCOHost, Science Direct and Google Scholar. These three are regarded as the largest online data bases and search engine (24). Web of Science was utilized in the literature search as a major data base collection (25). Besides, Scopus and Proquest data bases were also used and these have been utilized by past studies in tourism (26). In the selection of the literature, first the criteria used include the texts must be majorly structured within the

hospitality, tourism and events management, and second is the relevance to the modern business model. Overall a total of 620 articles published between January 2010 and November 2018 were retrieved. These periods appeared to be the beginning of academic interests in digital technology and especially on sharing economy in the context of hospitality, tourism and events management research (27), and the sharing economy did not attract extensive academic interests before 2010 (28).

B. Data Analysis

In the final selection, 350 articles focusing on hospitality, tourism and events management research were identified and content analysed. Besides that, summative content analysis was further employed to finalize the data analysis (29). The main rationale is that this study starts by identifying the keywords prior and during data analysis. Findings from data analysis can be easily linked to the purpose of this study because the keywords were derived from extant literature (29). It should be noted that keywords are categorized by related themes in order to support interpretation of findings. A total of 437 keywords were identified and presented in Table 1.

TABLE I. KEYWORDS IN THE REVIEWED JOURNAL ARTICLES

Keywords	Frequency
Digital technology and digital technologies	37
Mobile applications	12
Gig economy	5
Digital innovation	1
Robotics and Artificial intelligence	20
Airbnb	35
Uber	32
Business-to-business	21
Peer-to-peer	16
Business-to-customer	25
Leisure, travel and Tourism	31
Hospitality and hotels	40
Events, and event management	14
Smartphone technology	18
Collaborative economy	10
Disruptive digital innovation	34
Sharing economy and destructive sharing economy	30
Platform economy	20
Access economy	10
Industry 4.0 and fourth industrial revolution (IR 4.0)	11
Total	437

Source: Authors

IV. Results and Discussion

We identified 437-keyword counts and analysed. Likewise, similar keywords were classified and combined. Hospitality and hotels are the most frequently occurring keyword. This is followed by digital technology and digital technologies, Airbnb, disruptive digital innovation, Uber, business-to-business, leisure, travel and tourism, sharing economy and destructive sharing economy among others. The major results are discussed in the following sections.

A. Opportunities

Findings suggest digital technology and sharing economy provide several opportunities in the management and advancing customer's experience in hospitality and tourism industry. These opportunities include meeting customer expectation, convenience and memorable experience; efficiency and productivity; cost saving and staff skills development; increased market share and hotel location attraction and awareness; and innovative product, service development and branding. The application of robotics artificial intelligent system in the hotel industry specifically, AI has the capacity to learn about guests by using its data analytics platform that assists hotel staff in creating a better frame of their guests. This is made possible by applying the AI software to capture large amount of information about the customer purchases, payment methods, travel choices, hotel rating, destination preferences and journey patterns and itinerary (22).

B. Threats

These threats include increase in the number of unemployment rate; rising cost operation due to frequent changes in technology; societal dystopia, safety and security concern; loss of economic and financial revenue to the government; and prolong service failure and unsatisfactory service recovery (30). Likewise, the challenges of disruptive digital innovation in the accommodation sector of hospitality and tourism industry include monitoring issues regarding the accommodation providers, disturbance issue in the neighbourhood that are previously known to be peaceful. Such locations have lost their serenity because more properties have been enlisted on the Airbnb. In addition, there is also a reduction in return on investments by the traditional hotel operators, thus making it a challenge to meet their financial responsibility to certain categories of shareholders and stakeholders. Similarly, government is concerned with the problem of not remitting tax to the relevant tiers of government by the property owners due to non-availability of data. Besides that, safety and security concern is an issue of concern in view of the global treats to life and properties by the insurgents, sub-standard buildings, and lack registration issues of illegal accommodation providers (10).

V. Implications and Conclusion

A. Implications

Implications to the hospitality and tourism operators is that these dominant online platforms would reduce their revenue profile and hence they need to go back to the drawing board by creating and sustaining superior customer-oriented services

in order to trigger repeat visits, encouraging positive word-of-mouth and e-word-of-mouth by the customers. Notably, there is a need for the hospitality and tourism destinations to invest in digital technology that would enhance customer experience such as artificial intelligence in hotels. For example, AI-driven chatbots is strategic in providing satisfying customer's service. Guests in the hotel can use hotel's special mobile device to interact with chatbots to carry important activities such as managing evening reservations, ordering meals and drinks, suggesting special dishes, taxi booking and itinerary planning, recommending interesting sightseeing and visits. In this regard, virtual interactions using mobile app, chatbots can overlook hotel employees and be a service representative like human being.

B. Conclusion

The originality or novelty of this study is that it has uncovered several opportunities and threats the digital technology and sharing economy provided. As a result hospitality and tourism industry service providers are not exempted from the consequences of disruptive digital innovation in an emerging global digitaleconomy. It is suggested that the industry players and policy makers will collaboratively address the challenges of digital technology and sharing economy whether it is disruptive or destructive (30). To sum up, this paper is predominantly relied on extant literature, it is suggested that future studies should focus on empirical studies among the hospitality, tourism and events management industry players in order to validate findings from this study.

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