

# An Analysis of the Development, Current State, and Future Prospects of Mobile Communications for the Travel and Hospitality Industries



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## 1 Introduction

When compared to 4G, 5G features a five-fold reduction in latency, ten-fold reduction in connected devices, one-thousand-fold reduction in mobile data, one-100-fold reduction in user data rates, and one-100-fold reduction in battery life [4]. In particular, 5G ensures a superior user experience, very low end-to-end latency, and increased connectivity, accelerated data transfer, decreased prices, and decreased inter-device latency [5]. In addition, 5G is designed with the user in mind [6]. Users may take use of 5G's capabilities, which include superior mobile communications, improved conventional mobile service capabilities, and the integration of formerly separate networks into a unified whole [7]. These benefits have opened the door for the general population to try out a totally wireless society [4]. 5G has applications in a wide variety of industries and fields [8]. Virtual and augmented reality (AR) that is very seamless are two such instances [9]. experiences, Streaming ultra-high-definition films in real-time, automated production in factories, computerized farming, mobile healthcare, and “smart” city planning are all examples. New mobile communication technology and features are influencing changes in the hospitality and tourist sectors. Academic study on “tourism/hospitality and technology” has been rare despite the extensive use of mobile communication technologies by the

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hospitality industry. For example, Law et al. [10] collected studies on mobile technology published in Hotel and Travel magazines between 2002 and 2017, then sorted them into distinct categories from the vendor's and traveler's points of view.

The papers Dorcic et al. [11] read between 2012 and 2017 that was geared for travelers, app creators, and businesses. This research is in favor of using mobile communication technology in the hospitality and tourist industries. Rapid progress in technology has left universities behind. Previous assessments only went as far as 4G, therefore no research has been done on the potential expansion of 5G. Second, there is a lack of consideration for other books in the tourist and hospitality field. Using content analysis and the existing literature, our study fills in these two gaps in our understanding of 5G. If we can fill up these gaps in our knowledge, we can better evaluate studies including 1G-5G mobile communications in the hotel and tourist industries. The impact of mobile technology on the hospitality and tourist industries is the focus of this study. There are three aims of this study, which is unusual for empirical research. This study provides a comprehensive review of the literature on the topic of mobile communication technology's usage in the hotel and tourist industry, focusing on its most recent uses and the acceptance it has garnered from various stakeholders. Second, the purpose of this research was to provide more information on this subject for academics and entrepreneurs [12]. Knowledge deficiencies are not what this study aims to address [10, 11], not so much to provide new ideas or viewpoints, but to research the possible effects of 5G mobile communication technology on the tourism and hospitality industries. As a result, further study of mobile communication technology in the travel and hospitality sectors is needed, and here is where the theoretical direction and practical value of comes in.

## 2 Methodology

Content analysis [13] is used because working directly with the text enhances researcher's capacity to develop actionable ideas and insights. Data collection, data encoding, data analysis, and data interpretation information [14] are the study's four main stages, which are methodical and stringent in nature. As a result, content analysis may be used for quantitative and qualitative studies, and it can be addressed inductively or deductively [15]. Content analysis has been argued to be either a quantitative or qualitative method in the academic world. This study supports the claims of Camprub et al.'s [16] interpretation analyzing material as a hybrid approach. Content analysis mainly contributes three positive outcomes. To begin, the analysis's flexibility makes it possible to extract the relevant statistics from the text and apply them appropriately. Second, it's easy to get your hands on the tools that make computerized text analysis possible and easy to use [17]. Third, researcher demand bias and informant recall are both eliminated when using content analysis samples bias [18] since Most of them come from cold, hard facts. The study employs and is inspired by the techniques of systematic literature review Kitchenham et al. [19] and data

coding developed by Kim et al. [20]. Below, we detail the process of doing a content analysis.

## ***2.1 Inclusion and Exclusion Criteria***

In literature screening, a researcher reads each potential article for analysis and decides whether or not it meets three inclusion criteria.

The articles included must be on mobile communications and hospitality/tourism in order to guarantee the scientific quality and rigor of the evaluated material. The article's title, abstract, and keywords all had references to mobile communication technologies (such as mobile communications, 1G-5G, and mobile technologies) and hospitality/tourism (such as hotels, tours, and restaurants). The researchers then examine the full article to make sure the studies included are relevant to the study's subject; the possibility of individual bias in the selection process [22] is reduced by utilizing the consensus of two researchers to decide which studies to include. In the end, 108 articles were collected for further examination.

## ***2.2 Data Encoding***

The material was then coded by one researcher and reviewed by another to ensure accuracy. When disputes occurred among the researchers, they talked it through and settled it. The following information was taken from each publication for this study:

## **3 Data Analysis and Interpretation**

**Hidden Messages** The study's content analysis and interpretation are based on the following research questions, which were informed by the gathered literature and its coded data. (1) how different fields of study and mobile communication systems have influenced tourism and hospitality and vice versa.

- Mobile communication studies in the hotel and tourist industry have been increasingly published on an annual basis.
- The geographical and disciplinary spread of studies focusing on mobile communication in the hospitality and tourist industries;
- Methods, data, and acceptance of theory/models used in studies;
- Each generation of mobile communication technologies and the sectors or applications they assist within the hospitality and tourist industries.

4 Findings

Table 1 shows that just 42 of the magazines we looked at had anything to do with the hotel, restaurant, sporting event, or tourism businesses. There are 39 distinct technologically applied disciplines that fall under the umbrella of computer science, information systems, engineering science and technology, and telecommunications. Thirteen of the compositions are also concerned with travel or the geography of the world. There were 38 works that used 5G as a foundation for their research. There seems to have been an uptick in studies focusing on mobile communications in the hospitality and travel sectors. This area of study, however, has a lot of room for growth compared to others.

4.1 Utilizing Study Techniques and Theoretical Frameworks

Table 2 provides a synopsis of the publication’s methodologies, data sources, and theoretical models. In this section, studies were done from the viewpoints of tourists (n = 50), those not involved in the hospitality industry (n = 58), and everyone else (n = 108). Only 30 out of the 108 papers really make use of any kind of theory or theoretical model. There are 50 studies in the field of hospitality and tourism, 24 of which are theoretically grounded. Only six of the 58 studies that are not related to tourism and hospitality have any kind of theoretical underpinnings. There are a total of 23 different theories and models used in the articles, with the technology acceptance model (TAM; n = 5) being the most common.

**Table 1** Demonstrates the evaluated literature

Research background	Frequency	Percentage (%)
Topics for studying the tourism, leisure, and recreation industries	51	38.98
Engineering, science, technology, and communications systems	30	36.12
Science, technology, and the study of transportation and transportation geography	14	12.14
Other (City Planning, Business, Economics, Agriculture, Computer Science, Journalism, Political Science, Education, and Public Administration), and Related Fields	13	12.69
Total	108	100.00

Source Segmented by Researcher

**Table 2** Research strategies and theoretical frameworks that have been put into practice

	The study of travel and leisure		Different fields of study		Total	
	F	%	F	%	F	%
<i>Methods based</i>						
Strategies for using methods qualitative	20	40.00	23	39.66	43	39.81
In terms of quantity	23	46.00	7	12.07	30	27.78
Methods of a mixed kind	7	14.00	28	48.28	35	32.41
Information that is primary data	25	50.00	8	13.80	33	30.56
Information that is primary Secondary data	19	38.00	18	31.03	37	34.26
Modeling and acting out	0	0.00	14	24.14	14	12.96
Data of a mixed kind	6	12.00	18	31.03	24	22.22
<i>Theories and corresponding theoretical models</i>						
Technology adoption/acceptance model	5	10.00	0	0.00	5	4.63
Complex model of probability	1	2.00	0	0.00	1	0.93
Structure for understanding the interplay between technology, organization, and setting	1	2.00	0	0.00	1	0.93
Acceptance and use of technology: a unified framework	0	0.00	1	1.72	1	0.93
Promoting the theory of activation	1	2.00	0	0.00	1	0.93
Co-creation value theory	1	2.00	1	1.72	2	1.85
Values, attitudes, and behaviors, with some tweaks	1	2.00	0	0.00	1	0.93
Adoption framework based on value	2	4.00	0	0.00	2	1.85
Lag model for the distribution of quantizes	0	0.00	1	1.72	1	0.93
Theories of social cognition	1	2.00	0	0.00	1	0.93
Self-awareness and mental-state theory	0	0.00	1	1.72	1	0.93
Theory of the expanded self	0	0.00	1	1.72	1	0.93
Maslow's needs scale	0	0.00	1	1.72	1	0.93
Rational choice theory	1	2.00	0	0.00	1	0.93
The predictive model of behavior	1	2.00	0	0.00	1	0.93
Empirically-based research	1	2.00	0	0.00	1	0.93
Theory of the spreading of new ideas	1	2.00	0	0.00	1	0.93
A structure tailored to big data	1	2.00	0	0.00	1	0.93
To model with agents	1	2.00	0	0.00	1	0.93

Source Segmented by Researcher

## 4.2 *Function/Application Classification*

The hospitality and tourist industries have been revolutionized by mobile phone communication. The classifications and uses of functions are discussed in this article. The paper-based mobile communication system is outlined in Table 3. Intelligent transportation/Internet of cars; traveler self-service; tourist information systems [23], willingness and intent to use mobile communication technology, tourism/restaurant/hospitality management and marketing. From the early days of studies on hotels and tourism, and mobile communications have endured through several iterations of mobile communication systems. Using 4G for high-speed rail and virtual tourism may be really exciting. This is how hotels and travel have adapted to the rise of mobile phones.

Table 2 shows that 81 (75%) of the 108 papers we reviewed were relevant to our inquiry, and that only 12 (11.11%) adopted a genuinely global perspective. Of the 43 articles covering Asia, 18 deal specifically with China, 8 with Japan, and 8 with South Korea. Europe, including Spain ( $n = 7$ ) and Switzerland ( $n = 4$ ), ranked second ( $n = 24$ ). It is mostly due to the United States of America ( $n = 10$ ) that North America came in at No. 3 among all continents ( $n = 11$ ). Africa was the topic of four investigations, Oceania of three, and South America of one. The findings imply that as the usage of mobile communication technology spreads, researchers should expand their scope to cover hitherto unexplored areas or countries.

## 5 *Analysis and Repercussions*

### 5.1 *Research Perspectives on Communication Technologies in the Travel and Tourism Industry*

Mobile communication studies and infrastructure have an effect on the hospitality and tourist industries. Keep an eye out for additional timely studies. The study of mobile communication technologies in the hospitality and tourist industries benefits from the use of disciplines. These looked examined the connection between hotels and tourists using mobile phones. The hotel and tourism industry uses less mobile data. This encourages further study of mobile communication technologies, time spent online, and tech use in the hospitality and tourism industries.

Hospitality and tourism are compared in this study. In-depth scientific research is made possible by solid data bases. The employment of theories in the study of tourism and hospitality is on the rise. Unlike studies in the social sciences, technological applications are free to focus on either processes or concepts. Literature employed TAMs, utility TAMs evaluate the prevalence of mobile communication technologies in the hotel and tourist industries. This article has solid backing from scholarly sources. Popularity has not changed TAM's inability to investigate. Finally, reliable publications should emphasize theoretical models, theory-guided practice,

academic rigor, and research. Theoretical model frameworks and foundations must be developed for communication technology in the hospitality industries. Studies in the fields of hospitality and tourism might be qualitative or quantitative. The methodological basis of literature might be strengthened by learning from many areas, combining qualitative and quantitative approaches, and making the most of their benefits.

## ***5.2 Tourism and Hotel Industry Response to Successive Generations of Mobile Communication Technology***

This study examines hospitality and tourism mobile communication. Mobile communication altered hospitality and tourism. 3G provides mobile hotspots<sup>25</sup>, self-service travel smart transportation and navigation. Long-range gazing helps blind mobility. 3G improves hotel holidays 3G may boost tourism and hospitality. 3G may boost billion-dollar network tourism. Finally, 3G teaches hotel and attraction mobile device consumers privacy.

4G improves hotel-guest mobile communications. 4G and 3G networks enable travelers watch more movies, purchase online, and book faster. Mobile app marketing and hotel management may benefit from faster data delivery. Lee, Hwang, and Hyun used 4G restaurant mobile applications for advertising, demand management, customer interactions, and capacity planning.

IoT and IoV embraced 4G early. Jing, Han, Meng, Jiang, Lin, and Chen built intelligent transportation employing lines, historic buildings, user monitoring, and mobile applications. 4G-enabled automobiles did not raise flow control management system expenses. 4G allows remote hotel concierges and VR tourism.

Virtual tourism demands real-time video, images, and information. Faster, more reliable data transport helps. AR, VR, MR, and HP may help visitors. 4G increases hotel-robot interactions Smartphones alter tourism. Ecotourism uses 4G networks creatively.

Mobility and 4G high-speed rail. 5G may outperform 4G in hotels and tourism. 5G impacts many. 5G networks outperform 4G in speed, bandwidth, reliability, and latency. These benefits make IoT and IoV “Internet of Everything” (IoE) hotel and tourism applications. 5G links cars, roads, people, and infrastructure in congested areas.

### **5.3 *The Impact of Emerging Mobile Communication Technologies on the Hospitality and Tourism Industries***

The second objective of this research is to analyze how emerging mobile communication technologies will change the hospitality and tourist industries. Mobile communication system iteration time suggests the 5G era will begin in the 2020s and last through the 2030s.

#### **5.3.1 Changes in the Flow of Tourist Services**

New 5G technologies and their supply-side effects dominate academic study. IoT will improve personalized and tailored service with COVID-19. Hospitality regions badly impacted by the pandemic may use IoT to make real-time choices on hotel occupancy, guest dining alternatives (e.g., outside dining), major events, and cruise line arrangements. 5G latency eliminates VR dizziness and boosts VR industry growth. Tourists may explore immersive beautiful sites anytime, anyplace with 5G networks, HD, 4 K/8 K, and panoramic video. Tourist services will be improved by self-service gadgets and robotics. 5G will also impact travel habits. Technology reduces travel costs and increases frequency. Travelers will have real-time access to better transit, accommodation, and beautiful sites. This access enhances the trip experience, boosting demand.

#### **5.3.2 Improved Quality Free Time**

Early 5G. Terminal items are rare and commercialized slowly. Travelers may only notice minor changes. Technology will improve product quality and traveler experience, boosting leisure time and quality. AI will grow and enhance productivity. Robots will save time and boost tourism. IoT will meet new tourist expectations. IoT may enhance tourism. Smart tourism is enhanced by this technology. Information sharing increases cyber security threats. Since tourism and hospitality started using mobile technologies, user security and privacy have improved. Tourism and hospitality cyber security research will continue as mobile communication technology grows. 5G technology lets diners view ultra-high-definition video and chat on social media while waiting in line.

#### **5.3.3 5G Applications Will Be More Diverse**

Tourism and hospitality will benefit from fifth-generation mobile communication technology. Outdoors, technology will be employed. VR/AR, AI, and human-computer interaction may enhance cultural and tourist experiences. 5G networks in tourist intelligent transportation improve safety, reliability, operational efficiency, and

autonomous automobile travel. Thus, travelers may avoid traffic and route planning, while travel service providers can save money. Fifth-generation mobile communication will enhance scenic site management. 5G networks can help scenic sites monitor, react, and resolve crises in real time. Market need is met by live streaming and remote interpretation of virtual tourism.

## 6 Conclusions and Prospects

This study examines hotel and tourism mobile communication. This research examines mobile communication generational transitions. Travel, hospitality, and 5G. Results will follow. Hotel and tourism articles included 39 of 108. Each corporation uses actual data, but theoretical models seldom. Since 3G, all hotel guests have phones. Mobile technology benefits hotels and tourism. Mobile tech will shape travel and housing.

Finally, future mobile communications. Mobile communications in 5G will increase tourist production, leisure time and quality, and application possibilities through the “Internet of Everything.” Like 3G, 5G and mobile technologies will evolve over time. 5G mobile communication may cause these and other developments. Beyond-5G mobile communication technologies thrill the people. Thus, 5G commercialization is only beginning, whereas 6G development is just beginning worldwide. Mobile communications increase performance, architecture, and reliability. 5G impacts hotels and others. The hotel and tourism industry develop mobile tools for users. Businesses and consumers should optimize mobile communications, whether 5G, 6G, or earlier standards. Mobile technology affects individuals, corporations, governments, and service providers.

Client-focused level connected interaction, ubiquity of the intelligent kernel, and all-area mobile communication services are some ways this trend will affect tourism and hospitality. Mobile communication technology allows suppliers to quickly capture customer needs and supply market-adapted products and services, benefiting social structure transformation, high-quality economic development, and environmental sustainability. If 6G expands the digital twin, medical tourism might improve diagnosis, treatment planning, simulation, and testing. Mobile technology improves government services, yet deep intelligence and IT confront administrative agencies. Protect online conversations. Each new generation of mobile communication technology must comply with society standards and legal or ethical criteria. Service providers must innovate and explore new network topologies as corporate applications and mobile communications technology performance needs grow.

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