A Conceptual Review on Smart Tourism City towards Re-building Sri Lankan Tourism

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Abstract

During the past decades, Sri Lanka has been one of the best tourist destinations in the world. Several books, authors, and websites have recently nominated that Sri Lanka is the best place to obtain a superior tourist experience. Considering Sri Lankan tourism sector has been influenced by Covid-19 pandemic situation in advance. Stakeholders of the tourism sector are struggling to find a new solution for the prevailing situation. At the same time, countries that are gaining several competitive advantages from the tourism sector have adopted the Smart tourism city concept. Because it is a timely concept to win this digital era, this study explored to provide critically review the literature on the Smart tourism city concept and the possibility of applying this concept into the Sri Lankan context. A rigorous literature review was carried out by choosing many conceptual and empirical papers mostly published after 2015 in reputed journals to evaluate the smart tourism cities concept discussed by many authors critically. The findings of this study provide valuable insights into the stakeholders in the Sri Lankan tourism sector to implement this concept successfully. Manly, government authorities, owners, and managers of the tourism sector should engage with digital technologies when providing their service package. Further, smart tourism cities should consider the main three pillars, namely human capital, infrastructure, and information. Not only that but also community collaboration is another critical factor that should pay attention. Further, this study developed a model that represents the connection between several components of a smart tourism city.

Key words: Covid 19, Re-build Tourism, Smart Technology, Smart Tourism Cities

Introduction

Tourism is an essential function that generates higher revenue for a country. Tourism plays a vital role in economic growth by gaining revenue (Tripathy et al., 2018: Mirando, Dabare, Chathuranga, 2022). The Covid-19 has had a detrimental influence on the global economy in 2020. The tourist sector has been severely impacted as a result of Tourism income has increased due to industry features dropping precipitously (Yang et al., 2021). According to the Sri Lanka Tourism Development Authority (2020), the 2020 arrival rate of Sri Lanka's tourist arrivals declined by 73.5% compared to 2019 due to the corona epidemic. The global epidemic is still on the verge of spreading, and there are some restrictions to Tourist visits.

There is no clue to identify the tourists' demand for travel to Sri Lanka does not decline, but travelers have raised their requirements for travel safety and quality. The development of smart tourism directly impacts the safety and quality of tourism (Yang et al., 2021).

Smart tourism has become a term in recent years as a new form of the tourist sector. The combination of conventional tourism and "smart" technologies is known as smart tourism. Smart Tourist customizes tourism programs to meet the needs of each individual. Based on current information, visitor qualities technology has paved the way for a new route for tourism development (Yigitcanlar & Kamruzzaman, 2018). In a sense, one aspect of the word called smart indicated how to utilize big data to deliver a new set of values to the customer (Gretzel & Scarpino-Johns, 2018).

Further, smart tourism has emerged due to the evolution of Information & Communication Technology (ICT) and Ubiquitous in the tourism sector (Zhang et al., 2018). Smart tourists can be considered an essential component of a smart tourist city (Tripathy et al., 2018). Presently, in the digital era, smarts cities that compromise network linking through the whole city have evolved due to the higher development in information technologies & digital technologies such as Internet of Things (IoT), Global Positioning Systems & Big data (Um & Chung, 2021; Zhang et al., 2018). Infrastructures & revolutionary changes that happen due to smart cities will lead to influence tourism behavior. On the other hand, cannot be separated tourism sector from modern digital technology (Um & Chung, 2021).

Lee et al. (2020) defines the spirit of smart tourism cities as making public and private partner's interests together to provide both tourists and residents. Global competitiveness creates a need for smart tourism cities from a macroeconomic standpoint, and it is critical to realize that the magnitude of critical global factors is continuously driving Smart cities and tourism are merging. In recent years, the most elemental forces have been the rapidly rising, technology powered Online Travel Agents (OTAs) and global data businesses such as Google, TripAdvisor, Uber, and Airbnb. A smart destination should be thought of as a tourism marketplace, where the living space is available. Residents' actions coincide with those of visitors and vice versa. Smart tourism towns strive for improved quality of life and long-term growth for everybody while respecting and treating tourists culturally. The whole idea of smart tourism towns is to be able to respond to the situation more effectively and dynamically to both inhabitants' and tourists' needs and desires (Gretzel & Koo, 2021).

Problem Statement

Smart tourism has become a term in recent years as a new form of the tourist sector. The combination of conventional tourism and "smart" technologies is known as smart tourism. Smart Tourist customizes tourism programs to meet the needs of each individual. Based on current information, visitor qualities technology has paved the way for a new route for tourism development (Yigitcanlar & Kamruzzaman, 2018). The Covid-19 has had a detrimental influence on the global economy in 2020. According to the Tourism Development Authority - Sri Lanka, (2020), because of the corona outbreak, the 2020 arrival rate of Sri Lanka's tourist arrivals decreased by 1,406,016 (73.5 percent) compared to 2019. The worldwide disease is still on the edge of spreading, and tourist trips are restricted. There is no indication that tourist demand for travel to Sri Lanka is declining, but visitors' expectations for travel safety and quality have risen. Therefore, there is a need for the safety and secured tourism rise in the Tourism Industry, and smart tourism concepts would be the best solution (Yang et al., 2021).

With that concept, Sri Lankan tourism would re-establish the tourism industry in a good and effective manner. Therefore, this study aims to figure out how the epidemic has transformed and influenced smart tourism. Finally, the article makes some positive ideas for boosting the growth of smart tourism in the midst of the pandemic's normalization with smart tourism city concepts in Sri Lanka (Arachchi, Sandaruwani 2022; Munas et al., 2021). The application of smart tourism to cities is growing more popular, but it has not been properly recorded, conceived, critically evaluated, or debated. As a result, this special issue seeks to identify important concepts and behaviours resulting from the "Application of Smart Tourism to Cities" in acknowledging smart tourism as a new driving factor for innovation, creativity, and competitiveness in tourist cities after the pandemic.

Methodology

Smart tourism cities concept is a highly emerging trend in this digital era. In recent studies, most scholars have also explored the concept, methods for implementations, and advantages. Even though prevailing literature has explored the concept of smart tourism cities, as a developing country, in the Sri Lankan context, it isn't experienced. According to lonely planet magazine 2019, Sri Lanka is the number one tourism destination in the world. Within the prevailing pandemic situation, the tourist sector of Sri Lanka has faced several issues.

Consequently, this study aims to introduce the smart tourism cities concept as an alternative solution to re-build the Sri Lankan tourism sector after epidemic. Accordingly, empirical investigations written smart tourism cities are selected to meet the purpose of this study by filtering both the empirical papers and conceptual papers written on smart tourism cities, which are published in indexed journals. The keywords are Smart tourism, Smart tourism Cities, and Tourism Cities are used when searching the relevant studies from January to February 2022 in google scholar, Academia. Accordingly, this study follows a deductive approach to review the selected concepts and empirical contributions. Data collection methods compromise literature survey methods with the support of journal articles. And concept that is examined to organize the arguments and conclusions. Within due sections, the study provides a discussion based on empirical findings. It concludes with future research directions & limitations accordingly.

Systematic Review

What is the Smart Tourism?

Sectors that engage with tourism, digital technologies & modern digital & smart environmental trend have led to discuss smart tourism (Um & Chung, 2021). Smartness enables the real-time sharing of goods, activities, processes, and services by involving many stakeholders at the same time to maximize collective productivity and competitiveness and produce solutions and value for everyone. Typically, the term is connected with quick and productive results (Jasrotia, & Gangotia, 2018). Smart tourism indicates the transformation of tourism by technology and symbolizes the intersection of ICT and tourism. It denotes new tourism characterized by integrated efforts at a location to gather and analyse data derived from many sources in conjunction with sophisticated information technology to alter travel experiences to make them more enhanced, efficient, and sustainable (Ma, 2020). In this sense, smart tourism is a social phenomenon that integrates ICT into the tourism experience. Furthermore, smart technology has dramatically altered how travellers make various travel selections, such as transportation, lodging, and activities accessible at a chosen tourism location (GSK, 2020). The term "smart experience" refers to a technology-mediated travel

experience that has been enhanced via customization, distinctiveness, and real-time monitoring. The smart experience relates to technology-mediated tourism experiences that are improved via personalization, uniqueness, and real-time monitoring; the whole experience has evolved from e-tourism (data management) to smart tourism (maximizing interest (Boes et al., 2015). According to Gordon Philips (2019), smart tourism is "simply taking a comprehensive, longer-term, and sustainable approach to planning, creating, managing, and marketing tourism products and enterprises." Furthermore, smart tourism is based on two primary approaches (Li et al., 2017). Those can be identified as Smart searching and usability and Smart marketing techniques.

Evaluation of the Concept

When considering smart tourism, it also arises from the smart city concept: Given that tourism is an important industry in many countries economies, if not the most important in some instances, smart tourism may assist sustainable development tourism and has the potential to influence tourist destinations (Martins et al., 2017). With that concept, the term "smart city" emerges, which is described as the use of technology to uplift urban infrastructure and develop urban areas more efficiently while also increasing the quality of life for their occupants (Matos et al., 2019). The smart tourism city can be defined as a city with alternative solutions for sustainability issues while focusing on urban areas (Um & Chung, 2021). Smart cities are collaborative communities that provide collaborative systems. Consequently, it will lead to enhanced people's engagement with tourist sites. Finally, fulfill the peoples' entertainment needs in advance (Nam et al., 2021). Cities that tend to engage with smart tourism can be considered smart cities, which mainly focus on urban management, including optimization of transport facilities, effective energy usage, and avoiding sustainability issues (Coca-Stefaniak, 2020; Um & Chung, 2021). Further, smart tourism can be considered as simply taking a holistic, longer-term, and sustainable approach to plan, developing, operating and marketing tourism products and businesses. Additionally, smart tourism is modeled by two main techniques (Li et al., 2017).

Technological Engagement

Technologically aware tourists use social media & web blogs for obtaining information and online platforms for the payments rather than engaging with traditional modes (Chung & Koo, 2018). Digital technologies, namely smart devices, tourism portals & websites, information technology, influence the tourist service package from the design stage to even after the service is rendered (Buhalis & Amaranggana, 2015). Tourist service provides highly use technologies such as virtual reality (VR), augmented reality (AR) & field communication (NFC) (Han et al., 2016). One crucial decision is to engage with the Internet of Things (IoT) when governments develop smart tourism cities. The main advantage of utilizing IoT is facilitating communication among various objects, devices, and systems (Gretzel & Scarpino-Johns, 2018). Further, a smart tourism city involves several other technological components. Namely, extended versions of previous Wi-Fi coverage, installed close circuit CCTVs, using smart meters for calculating energy consumption, incorporate radio frequency identification tags (RFIDs) for the transportation objects, Near field Communication (NFC) facilitate payments through mobiles, a technology called Beacon for pushing data & information for mobile apps (Gretzel & Scarpino-Johns, 2018). In addition to that, considering the perspective of intelligent systems, encounter digital technologies that sense sustainability and provide an effective response, try to utilize available data as much as possible (Gretzel & Scarpino-Johns, 2018).

Namely, some smart tourist cities are Amsterdam, Barcelona, Brisbane, Dubai, and Seoul (Nam et al., 2021). Seoul is the largest smart tourism city in Korea. There is an official website & application management system for providing high-quality service to tourists who visit here. Certain tourism activities are conducted by using VR and AR. Further, they use U-help points that provide unmanned tourist information and free Wi-Fi areas for the betterment of tourists. Not only that but also, Seoul has been maintaining a smart eco-system that is based on the technology of the Internet of Things (IoT). Consequently, tourists could directly engage with CCTV, free Wi-Fi, and tourism guidelines. It will lead coexistence of residence (Um & Chung, 2021). The second-largest smart tourism city in Korea is Busan which is different compared with other education is the main competitive advantage of Busan. Similarly, it is the main objective of visiting Busan. An example is Busan conducts several international conferences & events. Currently, this city possesses IoT-based technologies such as smart parking, smart streetlights, and smart buildings. Further, for the city's tourist areas, having free Wi-Fi facilities and sites are incorporated with VR & AR. In addition to the above, Busan has been dedicated to providing smart tourism by conducting smart tourism app development competitions, organizing smart tourism festivals, and starting smart business schools for industry people (Um & Chung, 2021).

Jeju is an island located on the South Coast of Korea. Here are online tourism platforms for the general public to access the updated public data. Tourists can access personal information through mobile-based services powered by IoT. Further, the Tourist Promotion Agency of Jeju has a partnership with Kako, which is the largest Information Technology Company in Korea via Memorandum of Understanding (MoU). The main target is to promote tourism through mobile marketing (Um & Chung, 2021).

Considering the smartness of smart cities, there are three significant components called human capital, infrastructure, and information (Komninos et al., 2013). Human capital can be considered as a core component of the smart city which leads to smarter. In the sense of infrastructure, there should be a fiber network throughout the whole city. Finally, there is the ability to access real-time information without restriction (Komninos et al., 2013). When the county develops smart tourism, the most crucial step is to initiate an attractive website. After a specific period, performance should be evaluated (Zhang et al., 2018). According to the European Commission (2020), there are six pillars that they have identified related to the smart cities whit the Smart Cities project in the European Agenda: Opportunities for Portugal. Those were the smart economy, smart mobility, smart environment, smart people, smart governance, and smart living.

Benefit of the Smart Tourism Cities

One of the significant benefits of digital technologies in this sector is providing real-time information (Um & Chung, 2021). Further, due to the smart tourist technologies, tourists can capture detailed information. In other words, there is a possibility to obtain, use and share specific information during the journey (Um & Chung, 2021). Regarding this concept, further notices that designers should focus on smarter technologies for capturing real-time and smarter technologies & methods for optimum utilization of available resources & making effective decisions at the right time (Saunders & Baeck, 2015).

Smart tourism cities tend to increase the experience of tourists by enhancing the association between the service provider and tourist, improving effective participation during the service delivery process, and encouraging them to share their experience using social media (Gretzel & Scarpino-Johns, 2018). In the context of tourism, smart destinations allow a city to establish a distinctive selling proposition while also improving the entire experience of visitors visiting

the location (Boes et al., 2015). Further, the number of times that used the tourism technologies tends to increase technological trust towards tourism-related technologies. Finally, this usage supposed to build a smarter tourist (Um & Chung, 2021).

Discussion and Conclusion

Considering the prevailing situation in the tourism industry of Sri Lanka, it is not a booming industry further. Because the pandemic has influenced the tourism industry's growth in advance, relevant tourist authorities, tourist hotels, and other stakeholders should move for possible alternative solutions. Within this study, we hope to suggest smart tourism city concepts & their implementation in Sri Lanka's tourism industry.

As one implication, when engaging with the tourism industry by its stakeholders especially, hotel staff, government parties should continue more move for new technologies. Analyzing the result, Smart tourism indicates the transformation of tourism by technology and symbolizes the intersection of ICT and tourism. That means without using technologies & technological devices when there are going to deliver service package, unable to implement this concept. Within this digital era, peoples engage with social media highly. Not only hotels but also implementing these initiatives for government authorities as well.

Furthermore, those organizations could be engaged with IoT when implementing smart tourism cities. Throughout IoT could be maintained effective communication platform among several objects, devices, and systems. Most importantly, the government of Sri Lanka could facilitate Wi-Fi coverage areas within the most attractive tourist places. To ensure security, circuit CCTVs would be useful in transportation devices, smart meters for measuring energy consumption & RFIDs for tracking the actual locations. Regarding the payments for service packages, payments from the firms' end should motivate through using mobile banking & internet banking.
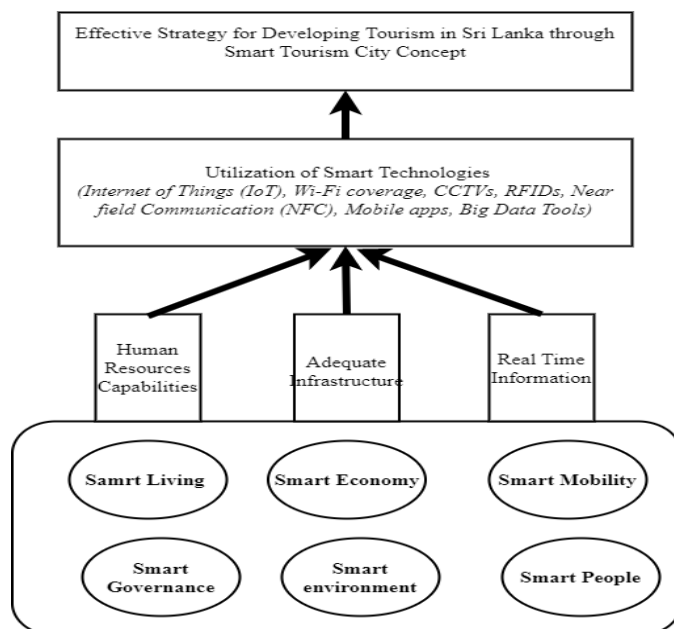

Figure 1: Rebuilding Sri Lankan Tourism with Smart Tourism City Concept (Developed by authors)
Komninos et al., (2013), European commission, Han et al., (2016)

In addition to the above implementations, firms should consider the main three components when implementing smart tourism cities. Those are human resources, infrastructure development & information. Firstly, in considering human capital, the core competency should be possessed by any smart tourism city. Because without staff who haven't proper technological know-how, it is not easy to go for best outcomes. Secondly, the purpose of infrastructure, mainly government should focus fiber network through the whole smart city area. Thirdly, getting support from the technologies mentioned above, implement effective web portals or systems to take real-time information to every stakeholder.

Also, a smart tourist city provides alternative answers to sustainability concerns that are not limited to urban regions. The collaborative communities that provide collaborative systems are referred to as smart cities. As a result, people will be more engaged with tourism attractions. Therefore, the community should also interact with smart technology, which would benefit further development as a smart tourism city.

To close the policy gap, governments at all levels should enhance their support for smart tourist companies. Also, we can continue to improve smart tourism modes by incorporating new smart tourism modes created during the epidemic. We understand and endeavour to meet the preferences and demands of tourists to actualize the idea of "customized tourism" through the use of Big data analysis tools. As the final phase, we should strengthen the marketing tool with the support of regulatory authorities and maintain to provide the accuracy of the information that other tourists get.

Within this study developed a model that represents the connection between several components of a smart tourism city. Researchers identified that as an effective strategy for re-building tourism in Sri Lanka using Smart Tourism City concept mainly needed to effectively use several smart technologies. Subsequently, for using smart technologies properly, the main three pillars are human resources capabilities, adequate infrastructures, and real time information. Smart living, smart economy, smart mobility, smart governance, smart environment, smart people will help to make the basement for the main three pillars.

Year	Title	Source (Journal/ Conference/ Report)
2022	Connecting the connected: How is Sri Lanka prepared to respond to digital tourists?	Technology Application in Tourism in Asia
2015	An Exploratory Study on Social Media in China	Information and Communication Technologies in Tourism
2020	Beyond smart tourism cities – towards a new generation of "wise" tourism destinations	Journal of Tourism Futures
2021	Smart tourism cities: a duality of place where technology supports the convergence of touristic and residential experiences	Asia Pacific Journal of Tourism Research
2018	Destination resilience and smart tourism destinations	Tourism Review International
2020	Annual Report Annual Report. In Fresenius	Sri Lanka tourism Development Authority annual report

2016	A near field communication adoption and its impact on Expo visitors' behavior	International Journal of Information Management
2018	Smart Cities To Smart Tourism Destinations: A Review Paper	Journal Of Tourism Intelligence And Smartness
2013	Special Issue on Smart Cities and the Future Internet in Europe	Journal of the Knowledge Economy
2017	The concept of smart tourism in the context of tourism information services. Tourism Management	Tourism Management
2020	The construction path and mode of public tourism information service system based on the perspective of smart city	Complexity
2017	A multisensory virtual experience model for thematic tourism: A Port wine tourism application proposal	Journal of Destination Marketing and Management
2019	Smart cities and smart tourism: What future do they bring?	Advances in Intelligent Systems and Computing
2022	A Literature Review on How Wellness Tourism Contribute to Re-Building Sri Lankan Tourism.	Sri Lanka Journal of Marketing
2021	Impact of Covid-19 and the importance of seamless integration of information technology in tourism industrial business processes in Sri Lanka	Journal of Applied Technology and Innovation
2021	Blockchain technology for smart city and smart tourism: latest trends and challenges	Asia Pacific Journal of Tourism Research
2015	Rethinking Smart Cities From The Ground Up. Nesta Innovation Charity Organization	Report - Nesta in England
2018	iTour : The future of Smart Tourism	IEEE Consumer Electronics Magazine
2021	Does smart tourism technology matter? Lessons from three smart tourism cities in South Korea	Asia Pacific Journal of Tourism Research
2021	Impact of COVID-19 Pandemic on Smart Tourism	Proceedings of the 5th Asia-Pacific Conference on Economic Research and Management Innovation
2018	Does smart city policy lead to sustainability of cities? Land Use Policy	Land Use Policy
2018	Functionality Evaluation for Destination Marketing Websites in Smart Tourism Cities	Journal of China Tourism Research
2020	Sri Lanka Tourism Development Authority Annual Report 2020	Sri Lanka Tourism Development Authority

Figure 2: Literature summary table

Future Research Directions

This study has some limitations which suggest the direction for future research. Firstly, the Data collection method compromises literature survey methods with the support of journal articles. Therefore, it is recommended that consider the interview as a data collection instrument. Subsequently, there is a possibility to incorporate a tourist perspective about smart tourism cities. In addition to that conduct studies regarding the employee's reediness to this digital transformation at tourist destinations should be done simultaneously. Because within the above empirically investigation process, human capital is crucial when the county is going to implement smart tourism cities. Secondly, this study mainly focuses on the whole country of Sri Lanka. However, there is a need for future research to consider selected tourism destination development in Sri Lanka, namely Ella, Arugam bay, Hikkaduwa. Importantly, it will provide unique suggestions & recommendations for the specific area. Thirdly, in the Sri Lankan context, a lack of digital technologies has been used. But RFID, Wi-Fi areas, CCTVs could be adapted easily. Subsequently, it is crucial to conduct studies on implementing separate digital technologies within attractive tourism areas that affect or benefit several stakeholders.

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