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Towards a Smart Tourism Destination: An Empirical Study on Hurghada, Egypt

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Keywords

Hurghada,
Smart city,
ICT,
Smart tourism destinations,
Technology.

Abstract

The term 'smart' represents a marketing word for all things that are embedded or enhanced by technology. One smart concept, which has gained momentum in recent years, is Smart City. It mainly focuses on how to increase the quality of life of citizens by using Information and Communication Technologies (ICT). This paper aims to explore the dimensions of technology that are crucial to the development of a smart city and a smart tourism destination. This paper develops a framework for smartness in cities and tourism destinations. Results open the ground for discussing how to transpose 'smartness' to tourism and destination levels. This research aims to study the possibility of applying the smart city model to the city of Hurghada. In addition, the research highlights the adoption of a new approach to building cities by relying on technological systems, information and ICT, services and social care with the aim of meeting technological challenges and meeting the requirements of the smart tourism city. This research used the descriptive analytical method, where a questionnaire was prepared and distributed to 105 experts in the field of ICT and experts in the Ministry of Tourism and Antiquities, and other academic researchers. These analyzes resulted in a positive and somewhat significant relationship between the possibility of applying the smart cities model to the city of Hurghada and the benefits that will accrue to Hurghada after its transformation into a smart city. As a result, this research recommends the importance of paying attention to Hurghada from a smart city perspective as a worthwhile coastal destination in Egypt.

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1. Introduction

Smart tourism development has become the focus of attention for many destinations around the world, promising competitive advantages by increasing efficiency, enhancing sustainability and improving tourism experiences (Abdel Rady & Khalf, 2019). However, the development of smart tourism is complex and many destinations seek to implement it successfully (Hwang et al., 2015).

The technological development that accompanied the end of the twentieth century and the beginning of the twenty-first century, represented by the emergence of communication and information technologies. This development was mainly reflected in the form of life and the way the performance of different activities. Moreover, this development leads to the emergence of a society of a new type based on knowledge and digital technologies, and lead different activities through Virtual Means Instead of the usual means, it is called a knowledge society or a digital society (Buhalis, 2000).

The term "smart city" is gaining popularity, but no specific definition can accurately interpret the concept. The participation of information technology in various aspects of the daily life of cities has led to the development of smart cities. The various obstacles resulting from globalization and population growth force cities to find smart solutions to manage these problems. These modern cities capable of meeting emerging challenges are called Smart City (Guo et al. 2014; Wang et al., 2013).

The development of the concept of the city as a result of this social development, and the corresponding progress in the scientific fields, and emerged several designations of cities based on technologies. These technologies are such as digital cities, electronic, virtual, cognitive, and smart. All these cities are linked to geography, not geographic assumption (Cardullo and Kitchim, 2019).

Recently, the idea of smart tourist destinations has emerged, extending from the concept of smart city so far there is little research conducted in the field of smart tourist destinations, where researchers focused mainly on the importance of ICT in places, this study examines the infrastructure of smart city It aims to provide a comprehensive framework for smart tourism destinations to take full advantage of ICT infrastructure and technological applications. This type of destination can provide value-sharing and experience for tourists, competitiveness and overall margin of destinations. (Park et al., 2011)

Thus, the norms and standards in urban planning have become insufficient to meet the requirements of cities in light of the rapid development of modern technologies, laying scientific foundations for building smart cities and transforming existing cities into cities with smart technologies. This will be clarified in this research through the study of Hurghada city, which is currently in the process of developing the organizational chart for 2030.

Research Problem

The problem of the research is mainly focused on the concept of the smart tourism destinations, the delay of the commence and adoption of its applications in developing countries. Moreover, the lack of a clear urban policy to advantage from recent technologies in the planning of future smart tourist destinations in existing and future cities.

Research importance

The importance of the research is that smart tourism destinations play a crucial role in providing personalized services to tourists by considering several aspects specifically access to information. and explanation of the role of technical and information development and how it influences the planning of smart tourism destinations.

Smart tourist destinations address the subject of technological development, which is a very rapid development, as the world produces new technology every day and every hour, which has clearly affected human thought and the daily lives of individuals. Consequently, the spatial relationship between the components of urban areas, the necessity of making the most of the positive effects of this development in the field of city planning, and working to crystallize future visions for the new city of Hurghada as a smart tourist destination in light of technological development.

Research objectives

The research aims to develop a strategy to transform the Hurghada city into smart tourism Destination, by identifying tools, procedures and priorities for operational action.

To achieve this, aim the research attempts to achieve the following objectives:

1. Explaining the concept of smart tourism and its components.
2. Study and analyze the applications and requirements of smart cities, and standards that evaluate the performance of these cities and their application to the city of Hurghada.
3. Presenting Hurghada as a smart tourist destination and a new concept in the local market.
4. Identify technologies and strategies to make Hurghada smarter.
5. Develop a business strategy for building smart cities, and transforming existing cities such as Hurghada into cities with smart technologies.

Research questions

1. What is the concept of a smart city and what distinguishes smart cities from traditional cities?
2. What are the most important challenges to create smart tourism destination?
3. Can the applications of smart tourism be adopted in Hurghada city?
4. How can a strategy be developed to transform Hurghada into a smart city?

2. Literature Review

2.1. Smart city concept systems

Views and opinions on what a smart city should look like, and the tangible improvements it should bring what are the problems to be solved, differ in different parts of the world. (Mohanty et al., 2016).

Sence, the list of smart city regulations, including safety aspect: Safe City, as shown in Figure 1. The ideas about a smart city are mainly influenced by its work Mohanty et al. (2026) and Center of Regional Science (2018) in Vienna include the following systems; smart transport, smart energy, smart technology, smart living, smart environment, smart citizens and education, smart economy, smart government, and safe city. Specific case is the position of Internet of Things and Cloud. Those are not independent systems, but rather basic tools to achieve described needs (Mohanty et al., 2016).

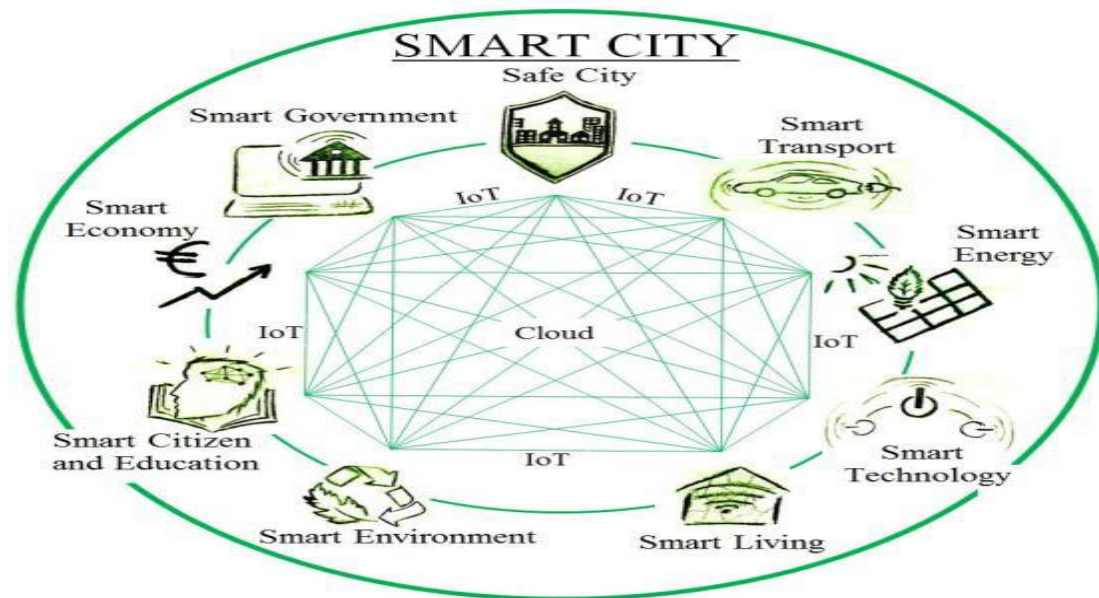


Figure 1: Systems of a Smart City

Source: Centre of Regional Science (2018)

2.2 Characteristics of a smart city

Most smart city concepts, according to Saruja et al. (2016) have four key Characteristics: urbanization, intelligence, sustainability, and quality of life. Each characteristic has a small number of sub-traits. Sustainability comprises sub-features related to infrastructure, government, climate change, social issues, pollution, waste, energy, economics, and health. Sustainability is the capacity of the city to support and carry out its operations while preserving the ecosystem's balance in all of the aforementioned areas. The financial and emotional health of a citizen is a sign of better quality of life (Mohanty et al., 2016).

The feature of urbanization focuses on the technological, economic, infrastructure and governing aspects of the transition from the rural environment to the urban environment. Intelligence is defined as the desire to improve the social, environmental and economic aspects of a city and its residents (Mohanty et al., 2016).

Since the 1980s, sustainability has been a paradigm in urban development. Sustainability played a major role in the emergence of smart cities (Mohanty et al., 2016).

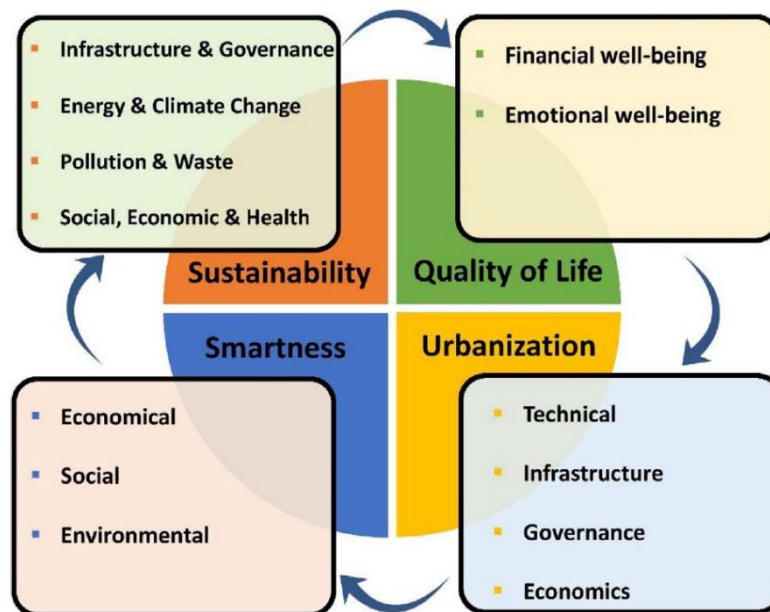


Figure2: Characteristics of a Smart City

Source: Silva et al., 2018

In the past, smart cities have been proposed with the ultimate goal of: In the past, smart cities have been proposed with the ultimate goal of raising the standard of living. By using creative solutions, the residents' quality of life is being improved, which lowers the obstacles to social engagement and social learning constraints. The quality of life app is ultimately fulfilled by the material and psychological well-being of both workers and people. comparable efforts to raise the standard of living made in other cities by her. For instance, the Japanese city of Yokohama established an artists' circle to gather artists and provide performances, workshops, and exhibitions to enhance social values (Sasaki, 2010).

Experts claim that the smart city is the perfect solution for manage the challenges that arise with radical urbanization. Some of my specialty The challenges that urbanization follows are the dilemma of air pollution, waste management, traffic congestion, and harmful effects on human health, infrastructure obsolescence and resource scarcity (Borja, 2007; Washburn et al., 2009; Toppeta, 2010). Urbanization is categorized by purpose i.e. industrialization-led urbanization, enterprise-led urbanization, in order to provide flexible management. City Intelligence aims to improve the living standards of the city's urban community in economic, social and environmental terms.

It analyzed the partial correlations between e-government, human capital, public transport network length, recreational employment, and per capita GDP to measure smart city intelligence in Europe (Caragliu et al., 2011).

2.3 Smart tourism levels

Smart tourism has three levels (Wang et al. 2012):

1. Smart tourism provides managers (such as those in the government and tourism industry) with instant access to travel information and itinerary planning capabilities.
2. Smart tourism is a comprehensive and meticulous framework that unites precision, convenience, and the industry's broad applicability of data applications by constructing six industry administration stages that, from a specialist perspective, provide visitors with booking, transportation, convenience, travel, and shopping.
3. By achieving a highly organized and intricate connection between physical tourist resources and tourism information resources, smart tourism is able to provide the general public, organizations, and the government with a new range of diverse tourism services for the future.

2.4 Stages of smart city development

There are some stages and solutions to reach a smart city (Ruthbea, 2013):

1. **Specialized institutions:** It refers to some institutions based on good planning.
2. **Exploiting Opportunities:** Exploitation of the opportunity with effective cooperation within and between departments, and key stakeholders with interest and removal obstacles.
3. **Repeatable:** Completing projects with their effectiveness to achieve integration with the possibility of replicating the integrated model.
4. **Managed:** Maintaining consistency and creating formal structures for company data while utilizing technology appropriately.
5. **Optimized:** Attaining sustainability at the local level, adapting, creating strategies on a constant basis, putting information technology into practice, and having a government that permits integrated systems to function independently within the larger system.

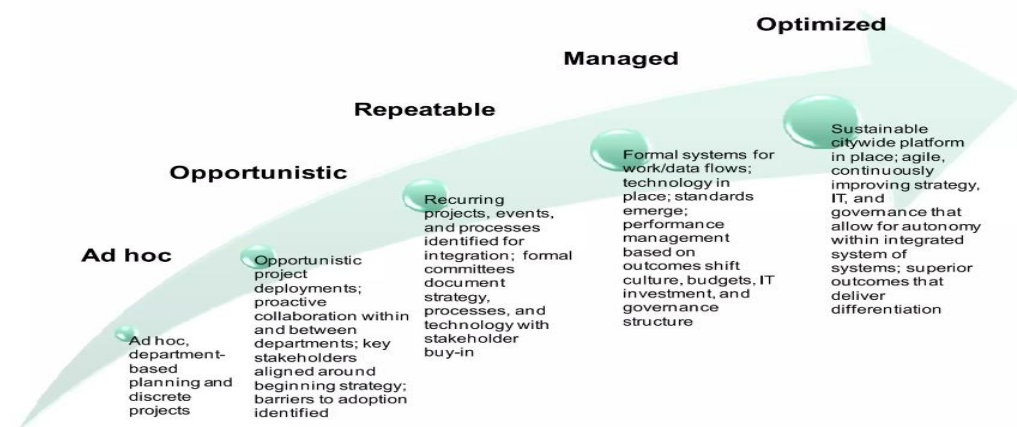


Figure3: Smart Cities and the Internet of Everything, 2013

Source: (IDC Government insights, 2013)

2.5 Smart tourism destination

Smart tourism destination can be defined as “a platform, which is implementing ICTs such as Artificial Intelligence, Cloud Computing and Internet of Things to offer the tourist personalized information and enhanced services established by mobile end-user devices” (Boes, 2015).

Moreover, smart tourism destination can be defined as: an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of tourist areas, accessible to everyone, which facilitates the visitor’s interaction with and integration into his or her surroundings, increases the quality of the experience at the destination, and improves residents’ quality of life (Boes, 2015).

Gretzel et al. (2014) considered smart tourism destination as an element of tourism intelligence. While smart experience and smart business are two other components; Data processing and exchange the backlog was assessed as smart tourism strata. The concept focuses on tourism experience and management.

Stakeholders, and competition issues, when using information and communication technologies, information systems and social media are important mechanisms (Chiappa & Baggio, 2015). The purpose of the smart destination is to increase competition and increase the quality of life for everyone stakeholders, including locals and tourists (Caragliu, Bo, & Nijkamp, 2011; Buhalis & Amaranggana, 2014; Gretzel et al., 2016; Boes et al., 2016).

Buhalis and Amaranggana (2013) identify three main components of the ICT necessary to enhance smartness in a tourism destination: “Internet of Things (IoT), Cloud Computing and End-User Internet Service System” as follows:

- The Internet of Things (IoT) supports “providing information and analysis as well as automation and control”.
- Cloud Computing helps reducing fixed costs and sharing information.
- The End-User Internet Service System refers to different applications at different levels.

The Internet of Things is that everything is connected to each other via the Internet without time, space, and entity limitation. Internet of Things has emerged from the idea that Radio-Frequency Identification (RFID) tags, sensors, actuators, mobile phones, etc. objects or entities have been widely available to interact with each other through special addressing programs and to achieve common goal by environmental cooperation (Atzori et al., 2010).

The End User Internet Service System, comprises the number of applications at various levels based on the combination of cloud computing and the Internet Things. The Internet of Things is the most important component of smart tourism within a smart city (Nitti et al., 2017).

Examined smart tourism by looking at all kinds of online tourism applications and information sources, such as the Internet travel agencies, blogs, personal smartphone apps, social media, government and business websites. (Huang et al., 2017)

In order to make a tourism destination smart the dynamic connection of stakeholders through technological platforms is a key factor. The main objective of these platforms is to create a quick information exchange regarding all tourism related activities (Buhalis and Amaranggana, 2013).

In this regard, smart tourism technologies have a great impact on the overall travel experience. Smart Tourism Destinations are able to turn the challenges of the 6A's as well as of the emerging technological revolution into advantages. They are able to take and use the positives of "(1) Technology embedded environments; (2) Responsive processes at micro and macro levels (3) End-user devices in multiple touch-points; and (4) Engaged stakeholders that use the platform dynamically as a neural system" (Buhalis and Amaranggana, 2013).

Moreover, there are a need for big data analytics in any destinations and the need for data-driven destinations (Mohamed and Al-Azab, 2021). It often focuses on the tools and technological development that have made data storage, processing, and analysis faster and cheaper. Despite of this, for many destinations, a strong data-driven culture still remains elusive, and data is rarely the basis for decision-making (Waller, 2020).

There are many ways to perform smarter as a tourist destination. Referring to the technological aspect, intelligence also emerges through the implementation of tourism-related applications that can be used within smart city components. Smart tourist destinations should also create a creative environment within the city. They must be able to provide a space for their residents to learn, innovate and create knowledge. Moreover, they must ensure a functional digital infrastructure that allows for up-to-date communications and knowledge management. These sectors also need to collaborate to implement intelligence at destination (Buhalis and Amaranggana, 2013).

2.6 The technological foundation of smart tourism

Examples of technology more closely linked to smart tourist destinations include the following:

1. Cloud computing, IoT, fast mobile communication technology, geographic information systems, and virtual reality technology are some of the advancing technologies in smart tourism (Li & Fan, 2011).
2. To complete tourist development and management procedures and to capitalize on the intelligence and information present across the tourism industry, smart tourism made use of intelligent technology (Wang et al. 2012).

3. Using computers, mobile apps, intelligent terminals, and intelligent technology as the primary platforms to deliver intelligent service, intelligent business, and intelligent management, smart tourism is focused on the needs of the traveler (Yao, 2012).

4. Smart tourism will comprehend the assortment, real-time transition, and automatic declarative of tourism information. It is built on cloud computing technology with smart phones and intelligent terminal equipment (Fu & Zheng, 2013).

2.7. Six dimensions of smart Hurghada

The ultimate goal of smart Hurghada is "to become the happiest city on earth" for citizens and residents and / or visitors both. The vision is not just about becoming the smartest in terms of technology rather, we are one of the happiest places to live and work in the world. Regarding Hurghada goal to become a smart city in the world, technology is adopted across four pillars and six specific dimensions they include (Neuhofer et al., 2012):

1. Efficient: to become a city where resources are used in an optimized way.
2. Seamless: To integrate daily life services across the city and its residents.
3. Security: anticipate risks carefully and protect people and information.
4. Influential: To make a difference through rich lives and satisfying work experiences.

The four pillars mentioned above cover six dimensions, as follows (Neuhofer et al., 2012):

- 1- Economy: Where intelligent and innovative economic conditions and tools are provided to fuel entrepreneurship and competitiveness.
- 2- Governance: Where transparent government services exist for both public and private sectors.
- 3- Environment: Where asset management is used intelligently to minimize pollution and resource wastes.

Examples are smart grid and buildings integration, smart water irrigation, smart sewage water, smart storm water management, and smart waste management.

- 4- Living: Where an exceptional quality of life is present as it relates to education, healthcare, and cultural lifestyle.

Examples are smart buildings, smart home, building and facility management, health, and total healthcare stations.

- 5- Mobility: Where the transport of people, things, and ideas is seamless and efficient.

Examples are infrastructure for smart roads, bridges and tunnels, Intelligent Transport System (ITS), and smart traffic and parking management.

- 6- People: Where people welcome a culture of continual learning, involvement, and innovations. Examples are smart education and smart security.

The six dimensions of Smart Hurghada require hundreds of initiatives and tenfold many government services in the fields of infrastructure, urban planning, transportation and electricity, communications and economic services. It is implemented to provide intelligent services for citizens.

2.8.Hurghada city SWOT matrix

The SWOT analysis is based on table 1.

Table 1. SWOT analysis of Hurghada city

Strengths	Weaknesses
<ul style="list-style-type: none"> - Excellent location on the coast and geographical location on Climatic level. - The presence of a natural urban beach. - A unified destination with high quality in providing basic services. - The presence of references and experiences of a strategic nature. - Availability of wide, rich and environmental landscapes of high value. - The production model based on diversification and specialization. - A strong offer for tourist accommodation. 	<ul style="list-style-type: none"> - Arriving at a city with low urban quality, low attractiveness and inefficiency from a mobility point of view. - Lack of social, cultural and administrative facilities. - The car is the main means of transportation in the city. - Increased pressure on the environment and natural resources due to its high altitude. Noise pollution, high energy consumption in homes, and lack of recycling of organic waste. - Lack of cooperation between the public and private sectors in managing and promoting tourism. - Low governance in tourism (beyond specific contributions of City Tourism Authority). - Lack of investment in research, development and innovation projects. - Lack of provision of technological and energy infrastructure. - High degree of tourism seasonality. - Lack of marketing channels. - Rotating customer service specialists in the affected sectors tourism.
Opportunities	Threats
<ul style="list-style-type: none"> - Enhancing value and increasing integration between nature and Resources in tourism. - Connecting the natural environment to the urban environment through pedestrian and cyclist paths. - Revitalization, decontamination and development of deteriorated areas Public places and green areas. - Emerging international markets. - Encouraging the use of information and 	<ul style="list-style-type: none"> - The risk of pollution of urban lands, coastal infrastructure and ecosystems - Human pressure on natural resources. - Stagnation of external capital investment. - Lack of change between generations, loss of cultural and tourism heritage. - Lack of innovation and competitiveness of the local tourism sector. Displays Slightly variable and depends on product sun and beach.

<p>communications technology to improve management and efficiency Public services that have a positive impact on the use of energy resources, Environmental, mobility, tourism and commercial management Promotion of the city.</p> <ul style="list-style-type: none"> - Developing and improving sustainable urban mobility systems Infrastructure and improving energy efficiency. - The possibility of creating tourism products for seasons with low seasonality Related to events, conferences, culture, etc. - The possibility of enhancing innovation and entrepreneurship policies. 	<ul style="list-style-type: none"> - Traditional promotion with little production of new products Marketing lines. - Enhancing the tourism group's "quality of life".
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Source: Own creation based on the Strategy for Sustainable and Integrated Urban Development (Sigalat et al., 2019)

3. Methodology

The researcher used the descriptive analytical approach, where a questionnaire was prepared and distributed to convenience .The questionnaire was distributed randomly online sample of one hundred five (105) of experts in information and communication technologies and academic experts in the tourism sector. The statistical analysis of the responses was carried out via SPSS v25.

3.1. Measures

To fulfill the research objective of introducing Hurghada as a smart tourism destination and contributing to the recent debate on innovation in tourism, a proposed interpretative framework able to explain the way in which technological components in a smart tourism destination may improve the co-creation of tourism experiences was introduced. To achieve that, this research employed a method of descriptive analytical methodology by using a questionnaire tool, a survey consisted of eight sections was used as a data collection tool. The first section includes the demographic characteristics of respondents (gender, age group, and educational level. The second section included 6 variables assessing concept of smart tourism destinations. The third section included 6 variables representing Current Situation of smart tourism destinations. The fourth section included 13 variables representing using of Information and Communication Technologies. The fifth section included 17 variables representing using technologies and new process management and marketing in Smart Tourism Destinations. The sixth section included 5 variables representing the use of tourism applications in smart tourism destination. The seventh section included 11 variables representing Barriers to Become Smart Tourism Destinations. The eighth section included 6 variables representing opportunities to become a smart tourism destination. The questionnaire items were anchored according to the Five-Point Likert Scale, “1 = Strongly Disagree (SD)”, “2 = Disagree (D)”, “3 = Neutral (N)”, “4 = Agree (A)”, and “5= Strongly Agree (SA)”.

3.1.1 Hurghada as a smart tourism destination

Tourism destinations use technologies such as smart applications to describe natural and tourist attractions in Hurghada. In order to understand the way during which Hurghada could enhance the co-creation of tourism expertise, an interpretative framework has been elaborated it is based on the literature review on smart tourism destinations (Buhalis and Amaranggana, 2013) and on tourism expertise (Neuhofer et al., 2012) indicated in the previous section. The suggested framework could fill the current gap in literature, offering a better understanding of the method during which technological elements in a smart tourism destination may enhance the co-creation of tourism expertise. It considers that the typical technological elements of a smart tourism destination act on the six components (Attraction, accessibility, Amenities, Available packages, Activities, and Ancillary Services) which identify a destination, influencing the expertise co-creation with consumers. In the lower part of the framework, there are the technological elements of a smart tourism destination, distinguished by cloud computing services, IoT, and end-user internet service systems, and by the technological techniques relevant to them. These components, in fact, are at the basis of innovative technological techniques implemented by the destination provide system in order to improve the visit expertise.

3.2.Data Validity and Reliability

3.2.1. Data Validity

To validate the data collection instrument utilized in this study in terms of its readability, format, and ability to measure the study's constructs; the researcher distributed the questionnaire instrument to experts in Information and communication technologies and Academic experts in the tourism sector. The questionnaire instrument was then updated and refined to reflect the comments and suggestions received by the domain experts. Moreover, the experts showed interest and interacted with the researcher concerning the questionnaire instrument which adds to its validity.

3.2.2. Data Reliability

The reliability of an instrument is the degree of accuracy and consistency with that it measures whatever it is measuring (Ary et al., 2002). The reliability analysis was conducted to make sure that there are an internal validity and consistency for the items used for each variable (Fahmy and Al-Azab, 2016; Mohamed and Al-Azab, 2017). Before proceeding with further analysis, the reliability test was done in order to ensure consistent measurement across various items in the questionnaire. As depicted in table (1), the Cronbach's Alpha Reliability was computed for seven sections. The tests showed that the reliability coefficients for all the sections were equal 0.997 and validity coefficient for all the sections were equal 0.998 which indicates that the instrument is reliable for being used.

Table1: Cronbach’s Alpha Value for smart tourism destinations

Variables	No. of items	Cronbach’s Alpha Value	Validity Coefficient *
Assessing Concept of Smart Tourism Destinations	6	0.979	0.989
Current Situation of Smart Tourism Destinations	6	0.985	0.992
Use of Information and Communication Technologies	13	0.994	0.997
Use of technologies and new process management and marketing in Smart Tourism Destinations	17	0.996	0.998
Tourism applications in smart tourism destinations	5	0.988	0.994
Barriers to Become Smart Tourism Destinations	11	0.995	0.997
Opportunities to become a smart tourism destination	6	0.993	0.996
Total	64	0.997	0.998

* Validity coefficient = $\sqrt{\text{Reliability coefficient}}$

In order to measure the internal consistency and reliability of the study’s constructs. Cronbach’s Alpha (α) measure was used. The scales’ reliabilities were measured and the Cronbach’s Alpha of all scales in Table (1) ranged from 0.979 to 0.996, and for total questionnaire items was (0.997), this indicate an acceptable Cronbach’s Alpha value for each field, whenever Cronbach’s Alpha value is acceptable if it's more than (0.7). It is also evident that the validity coefficient is (99.8 %) which means the reliability and validity of the study sample.

4. Results and Discussion

First Section: Demographic characteristics of respondents

The percentage of males (59%) of the sample members and (41%) of them are females. Most of the respondents (47.60%), were aged between 30 and 39 years, whereas (31.40%) of them were aged between 40 and 50 years. Regarding the education level, (38.10%) of the respondents were PHD degrees, whereas (31.40%) of them were Master degree.

Second Section: Attitude Concept of Smart Tourism Destinations

Table 2: Assessing Concept of Smart Tourism Destinations

Variables	Mean	standard deviation	Rank	Attitude
The concept of smart tourism destination is a good reference for the management of tourist destinations	3.68	1.205	5	Agree
The concept of smart tourism destination is important, but does not present clear benefits for the tourists	3.79	1.199	1	Agree
The concept of smart tourism destination is adaptable only for destinations with a large number of tourists	3.68	1.244	6	Agree

The configuration of a smart tourism destination is key to adjusting to demand trends	3.78	1.126	2	Agree
The configuration of a smart tourism destination is key to competing in the current tourism market	3.72	1.221	4	Agree
The configuration of a smart tourism destination is key to being more effective and reducing costs	3.78	1.168	3	Agree
Total Mean	3.74			Agree

The detailed examination of the results presented in Table (2) reveals the respondents' responses pertaining to assess concept of smart tourism destinations. The average score resulted with a mean of 3.74. This indicates that majority of the cases tend to mark on the middle of the scale on a 1 to 5 range. However, most of the items resulted with a slightly higher mean than 3 indicating the agreeableness of the respondents on those items, as imperative for assessing concept of smart tourism destinations. The highest mean values for assessing concept of smart tourism destinations emerged for the item "The concept of smart tourism destination is important, but does not present clear benefits for the tourists" (mean = 3.79, standard deviation =1.199), followed by "The configuration of a smart tourism destination is key to adjusting to demand trends" (mean = 3.78, standard deviation =1.126), whereas, the lowest mean value for this construct is for "The concept of smart tourism destination is adaptable only for destinations with a large number of tourists" (mean = 3.68, standard deviation =1.244).

Third Section: Current Situation of Smart Tourism Destinations of Hurghada

Table 3: Current Situation of Smart Tourism Destinations Hurghada

Variables	Mean	standard deviation	Rank	Attitude
Hurghada has an all-around characterized technique to wind up smart tourism destination	3.68	1.148	3	Agree
Hurghada is advancing satisfactorily to sensible smart tourism destination	3.65	1.177	6	Agree
There is a high level of public-private partnership in Hurghada as a smart tourism destination	3.68	1.205	4	Agree
Different civil departments work together with the activities of smart tourism destinations	3.66	1.192	5	Agree
Internet connectivity available a in the fundamental tourist regions of Hurghada	3.70	1.184	2	Agree
Hurghada can be considered sustainable destination	3.70	1.270	1	Agree
Total Mean	3.68			Agree

Table (3) presents the means and standard deviations of Current Situation of Smart Tourism Destinations, where the means ranged between (3.70 -3.65), compared with the total instrument mean for the domain (3.68) the item "Hurghada can be considered sustainable destination" ranked first with a mean and standard deviation (mean=3.70, standard deviation = 1.270) compared with the total instrument mean and the standard deviation. The item "Hurghada is advancing satisfactorily to sensible smart tourism destination" ranked last reached a mean (3.65) and the standard deviation was (1.177) compared with the mean and standard deviation of the total instrument.

Fourth Section: Use of Information and Communication Technologies

Table 4: Use of Information and Communication Technologies

Variables	Mean	standard deviation	Rank	Attitude
Hurghada is taking advantage of the opportunities offered by Information and Communication Technologies	3.71	1.150	13	Agree
Hurghada is taking advantage of the opportunities offered by Information and Communication Technologies for better knowledge about Attraction (architecture, landscape)	3.73	1.146	11	Agree
Hurghada is taking advantage of the opportunities offered by ICTs to facilitate better services accommodation, transport, and gastronomy.	3.75	1.133	8	Agree
Hurghada is taking advantage of the opportunities offered by ICTs to manage tourist...	3.73	1.154	12	Agree
Hurghada is taking advantage of the opportunities offered by ICTs to manage public.	3.80	1.095	3	Agree
Hurghada is using ICTs as a way of measuring public safety levels	3.74	1.177	9	Agree
Hurghada is using ICTs as a way of knowing the supply of lodging establishments	3.81	1.093	1	Agree
Hurghada is using the ICTs as a way of knowing the restoration projects	3.74	1.185	10	Agree
Hurghada is taking advantage of the opportunities offered by ICTs for marketing	3.80	1.113	4	Agree
Hurghada is taking advantage of the opportunities offered by ICTs to improve the Tourism activities (adventurous, relaxing)	3.80	1.180	5	Agree
Hurghada is an innovative space in relation to the incorporation of new technologies	3.79	1.098	6	Agree
Hurghada is innovative in the creation of new spaces, products and capture of new markets.	3.81	1.161	2	Agree
Overall, Hurghada is an accessible space for people with disabilities	3.79	1.158	7	Agree
Total Mean	3.77			Agree

Table (4) presents the means and standard deviations of using of Information and Communication Technologies, where the means ranged between (3.81-3.71), compared with the total instrument mean for the domain (3.77) the item “Hurghada is using ICTs as a way of knowing the supply of lodging establishments” ranked first with a mean and standard deviation (mean=3.81, standard deviation = 1.093) compared with the total instrument mean and the standard deviation. The item “Hurghada is taking advantage of the opportunities offered by Information and Communication Technologies” ranked last reached a mean (3.71) and the standard deviation was (1.150) compared with the mean and standard deviation of the total instrument.

Fifth Section: Use of technologies and new process management and marketing in Smart Tourism Destinations of Hurghada

Table 5: Use of technologies and new process management and marketing in Smart Tourism Destinations of Hurghada

Variables	Mean	standard deviation	Rank	Attitude
Placement of sensors in tourist areas	3.73	1.112	17	Agree
Marketing actions on social networks	3.79	1.182	14	Agree
GPS Systems	3.88	1.133	1	Agree
Relational marketing system	3.77	1.137	16	Agree
Business intelligence System at destination	3.83	1.139	6	Agree
Online reservation centers	3.78	1.152	15	Agree
Mobile applications (app)	3.86	1.130	3	Agree
Virtual assistant in the website	3.80	1.130	11	Agree
Augmented reality	3.85	1.142	4	Agree
Online surveys with destination companies	3.80	1.121	10	Agree
Online surveys with tourists	3.84	1.145	5	Agree
QR codes	3.81	1.144	8	Agree
Totens Touchscreen	3.80	1.104	9	Agree
Wi-Fi with free access in public spaces	3.79	1.166	13	Agree
Wi-Fi with free access in tourist information centers	3.86	1.113	2	Agree
Video guides	3.80	1.172	12	Agree
Audio guides	3.82	1.090	7	Agree
Total Mean	3.81			Agree

The detailed examination of the results presented in Table (5) reveals the respondents' responses pertaining to use of technologies and new process management and marketing in smart tourism destinations. The average score resulted with a mean of 3.81. This indicates that majority of the cases tend to mark on the middle of the scale on a 1 to 5 range. However, most of the items resulted with a slightly higher mean than 3 indicating the agreeableness of the respondents on those items, as imperative for using of technologies and new process management and marketing in smart tourism destinations. The highest mean values for using of technologies and new process management and marketing in smart tourism destinations emerged for the item "GPS Systems" (mean = 3.88, standard deviation =1.133), followed by "Wi-Fi with free access in tourist information centers" (mean = 3.86, standard deviation =1.113), whereas, the lowest mean value for this construct is for the item "Placement of sensors in tourist areas" (mean = 3.73, standard deviation =1.112) followed by "Relational marketing system" (mean = 3.77, standard deviation =1.137).

Sixth Section: Tourism applications in smart tourism destinations of Hurghada

Table6: Tourism applications in smart tourism destinations of Hurghada

Variables	Mean	standard deviation	Rank	Attitude
Augmented reality (AR) enables visitors to experience digital recreation of tourism sites and time	3.76	1.114	5	Agree

travel.				
Vehicle tracking system provides real-time information of transport network and could be distributed to end-user devices.	3.80	1.172	4	Agree
Hotel should able in predicting energy demand for building and perform energy audits based on their environment management.	3.83	1.139	2	Agree
NFC tags and QR codes to access information about nearby points of interest through mobile devices.	3.81	1.161	3	Agree
Tourists are able to register their complaints through a Complaints Management System that supported by various ICT channels such as SMS or mobile applications which could directly route them to appropriate officials.	3.88	1.062	1	Agree
Total Mean	3.82			Agree

Table (6) presents the means and standard deviations of tourism applications in smart tourism destinations, where the means ranged between (3.88-3.76), compared with the total instrument mean for the domain (3.82) the item “Tourists are able to register their complaints through a Complaints Management System that supported by various ICT channels such as SMS or mobile applications which could directly route them to appropriate officials.” ranked first with a mean and standard deviation (mean=3.88, standard deviation = 1.062) compared with the total instrument mean and the standard deviation. The item “Augmented reality (AR) enables visitors to experience digital recreation of tourism sites and time travel.”, ranked last reached a mean (3.76) and the standard deviation was (1.114) compared with the mean and standard deviation of the total instrument.

Seventh Section: Barriers to Become Smart Tourism Destinations

Table7: Barriers to Become Smart Tourism Destinations

Variables	Mean	standard deviation	Rank	Attitude
Problems arising from current laws	3.61	1.105	7	Agree
Difficulty accessing the internet	3.62	1.138	5	Agree
Lack of collaboration between the destinations	3.60	1.149	9	Agree
Lack of understanding of the concept of Smart Tourism Destinations	3.63	1.171	4	Agree
Insufficient qualification level	3.65	1.152	1	Agree
Shortage of staff	3.62	1.172	6	Agree
Low collaboration between municipal departments	3.61	1.114	8	Agree
Low public-private collaboration	3.58	1.133	10	Agree
Limited budget	3.64	1.153	3	Agree
Lack of well-defined strategy	3.58	1.183	11	Agree
Demand does not use the internet and ICTs	3.64	1.136	2	Agree
Total Mean	3.62			Agree

The detailed examination of the results presented in Table (7) reveals the respondents’ responses pertaining to barriers to become smart tourism destinations. The average

score resulted with a mean of 3.62. This indicates that majority of the cases tend to mark on the middle of the scale on a 1 to 5 range. However, most of the items resulted with a slightly higher mean than 3 indicating the agreeableness of the respondents on those items, as imperative barriers to become smart tourism destinations. The highest mean values for barriers to become smart tourism destinations emerged for the item “Insufficient qualification level” (mean = 3.65, standard deviation =1.152), followed by “Demand does not use the internet and ICTs” (mean = 3.64, standard deviation =1.136), whereas, the lowest mean value for this construct is for the item “Lack of well-defined strategy” (mean = 3.58, standard deviation =1.183) followed by “Low public-private collaboration” (mean = 3.58, standard deviation =1.133).

Eighth Section: Opportunities to become a smart tourism destination

Table 8: Opportunities to become a smart tourism destination

Variables	Mean	standard deviation	Rank	Attitude
High use of internet by Travel agencies	3.86	1.130	2	Agree
Rising use of smartphones during trips/ vacations	3.79	1.230	6	Agree
Possibility of a network of municipalities as a platform for collaboration	3.85	1.167	3	Agree
Easy access to the internet for tourists	3.85	1.239	4	Agree
Rising use of social networks during trips/vacations	3.87	1.161	1	Agree
Information and communication technologies do not require much investment	3.83	1.252	5	Agree
Total Mean	3.84			Agree

Table (8) presents the means and standard deviations of opportunities to become a smart tourism destination, where the means ranged between (3.87- 3.79), compared with the total instrument mean for the domain (3.84) the item “Rising use of social networks during trips/vacations” ranked first with a mean and standard deviation (mean=3.87, standard deviation = 1.161) compared with the total instrument mean and the standard deviation. The item “Rising use of smartphones during trips/ vacations”, ranked last reached a mean (3.79) and the standard deviation was (1.230) compared with the mean and standard deviation of the total instrument.

5. Summary and Conclusion

The real sense of smart tourism destinations is to concentrate on tourists’ requirements by combining the ICT with casual culture and tourist innovation industry in order to promote tourism service quality, enhance tourism management and expansion industry scale to a broader extent (Huang et al. 2012). The priorities of smart tourism destinations construction are to improve tourists’ travel expertise; to offer more intelligent platform both to gather and distribute information within destinations; to facilitate efficient customize of tourism resources; and to incorporates

tourism suppliers at each small and macro level attending to make sure that like advantage from this sector is well distributed to local society (Rong, 2018).

This research deals with the development of Hurghada as a smart tourist destination. This research used the descriptive analytical method, where a questionnaire was prepared and distributed to a random sample of one hundred and five (105) experts in the field Information and communications technology, academic experts in the tourism sector, and experts in the Ministry of Tourism and Antiquities. Various tests were applied, including the reliability test, frequencies, percentages, means, and standard deviation (SD): to describe the characteristics of the study population for the functional variables, and to determine the responses of its members towards the study axes. The following results were obtained:

1. The findings from the distributed questionnaires revealed that the highest mean values for **assessing concept of smart tourism destinations emerged** the item “The concept of smart tourism destination is important, but does not present clear benefits for the tourists” (mean = 3.79, standard deviation =1.199).
2. The findings from the distributed questionnaires revealed that The highest mean values for **Current Situation of Smart Tourism Destinations** the item “Hurghada can be considered sustainable destination” ranked first with a mean and standard deviation (mean=3.70, standard deviation = 1.270).
3. The findings from the distributed questionnaires revealed that The highest mean values for **Use of Information and Communication Technologies** the item “Hurghada is using ICTs as a way of knowing the supply of lodging establishments” ranked first with a mean and standard deviation (mean=3.81, standard deviation = 1.093).
4. The findings from the distributed questionnaires revealed that The highest mean values for **Use of technologies and new process management and marketing in Smart Tourism Destinations** the item “GPS Systems” ranked first with a mean and standard deviation (mean=3.88, standard deviation = 1.133).
5. The findings from the distributed questionnaires revealed that The highest mean values for **Tourism applications in smart tourism destinations** the item “Tourists are able to register their complaints through a Complaints Management System that supported by various ICT channels such as SMS or mobile applications which could directly route them to appropriate officials” ranked first with a mean and standard deviation (mean=3.88, standard deviation = 1.062).
6. The findings from the distributed questionnaires revealed that The highest mean values for **Barriers to Become Smart Tourism Destinations** the item “Insufficient qualification level” ranked first with a mean and standard deviation (mean=3.65, standard deviation = 1.152).
7. The findings from the distributed questionnaires revealed that The highest mean values for **Opportunities to become a smart tourism destination** the

item “Rising use of social networks during trips/vacations” ranked first with a mean and standard deviation (mean=3.87, standard deviation = 1.161).

Recommendations

1. Trying to choose smart city applications that are appropriate for implementing a city that has smart technologies, and according to its ability to implement them, provided that these applications increase over time. Smart services for cities must be able to integrate new services and technologies, alongside existing ones, supporting continuous development.
2. Arming with information and communications technology, that is, creating advanced and secure electronic information systems that rely on effective human competencies and effective marketing, technical, global and administrative devices and programs.
3. Trying to learn about everything new in the field of information and communications technology and the most important modern technological means used in various tourist facilities by taking advantage of specialized requirements and courses and reviewing them continuously.
4. Smart tourism destinations should use networks and technologies more effectively and efficiently. Training programs should also be considered to make better use of the tools and techniques needed to create this type of destination.
5. Allocating and maintaining websites on the Internet to provide information and provide those wishing with Egyptian tourist sites, companies organizing these trips, accommodation prices and discounts, and linking that to the completion of the tourism process (entertainment, cultural, historical, etc.). And not limited to each type separately.
6. It is necessary to provide periodic and radical technical support to the website of the Ministry of Tourism and Antiquities by adding paid video files paid through special government accounts, depicting live and rare scenes in tourist areas that benefit those wishing to increase their knowledge revenues before coming to Egypt, which generates additional income added to the treasury Country.
7. Global marketing works with people from multiple cultures. This can happen through the expansion of electronic conferences.
8. Following advanced educational systems that focus on understanding and learning, and are primarily concerned with modern technological sciences and developing the innovation movement, while disseminating and disseminating these systems in all international universities, institutes and schools specialized in the field of tourism.
9. Following a training policy aimed at following up on technological developments in the tourism field while intensifying field visits to some major foreign projects to gain experience and knowledge.
10. Following advanced educational systems that focus on understanding and learning, and are primarily concerned with modern technological sciences and developing the innovation movement, while disseminating and disseminating these systems in all international universities, institutes and schools specialized in the field of tourism.

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نحو وجهة سياحية ذكية: دراسة تطبيقية على مدينة الغردقة، مصر

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الملخص

يمثل مصطلح "ذكي" كلمة تسويقية لجميع الأشياء المضمنة أو المعززة بالتكنولوجيا. أحد المفاهيم الذكية، التي اكتسبت زخما في السنوات الأخيرة، هو المدينة الذكية. ويركز بشكل أساسي على كيفية تحسين نوعية حياة المواطنين باستخدام تكنولوجيا المعلومات والاتصالات (ICT). تهدف هذه الورقة إلى استكشاف الأبعاد باستثناء التكنولوجيا التي تعتبر حاسمة لتطوير مدينة ذكية ووجهة سياحية ذكية. باتباع نهج دراسات الحالة المتعددة، تقوم هذه الورقة بتطوير إطار للذكاء في المدن والوجهات السياحية. يجادل هذا البحث الاستكشافي بأن القيادة والابتكار ورأس المال الاجتماعي المدعوم برأس المال البشري هي البنى الأساسية للذكاء. تعتبر تطبيقات التكنولوجيا وتكنولوجيا المعلومات والاتصالات من عوامل التمكين التي تدعم البنى الأساسية للوجهات الذكية. تفتح النتائج المجال لمناقشة كيفية نقل "الذكاء" إلى مستويات السياحة والوجهة.

يهدف هذا البحث إلى دراسة إمكانية تطبيق نموذج المدينة الذكية على مدينة الغردقة. بالإضافة إلى ذلك، يسلط البحث الضوء على اعتماد نهج جديد لبناء المدن من خلال الاعتماد على الأنظمة التكنولوجية وتقنيات المعلومات والاتصالات والخدمات والرعاية الاجتماعية بهدف مواجهة التحديات التكنولوجية وتلبية متطلبات المدينة السياحية الذكية. كما يؤكد على أهمية تحويل الوجهات السياحية التقليدية إلى مدن سياحية ذكية.

استخدم هذا البحث المنهج الوصفي التحليلي، حيث تم إعداد استبانة وتوزيعها على 105 من الخبراء في مجال الاتصالات وتكنولوجيا المعلومات وخبراء في وزارة السياحة والآثار، بالإضافة إلى باحثين أكاديميين آخرين. وقد تم تحليل البيانات باستخدام الإحصاء الوصفي، والتحليل في برنامج SPSS 25.0 وقد أسفرت هذه التحليلات عن وجود علاقة إيجابية ومعنوية إلى حد ما بين إمكانية تطبيق نموذج المدن الذكية على مدينة الغردقة والفوائد التي ستعود على الغردقة بعد تحولها إلى مدينة ذكية. ونتيجة لذلك، يوصي هذا البحث بأهمية الاهتمام بالغردقة من منظور المدينة الذكية كوجهة ساحلية جديدة بالاهتمام في مصر.

الكلمات المفتاحية: الغردقة، المدينة الذكية، تكنولوجيا المعلومات والاتصالات، الوجهات السياحية الذكية، التكنولوجيا