Contents lists available at EKB

Minia Journal of Tourism and Hospitality Research

Journal homepage: https://mjthr.journals.ekb.eg/

How Smart Cities Can Be Leveraged to Create Sustainable Tourism Destinations: A Case of New Alamein City

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Keywords

Smart City, Smart Tourism Destination, Sustainable Tourism Destination, New Alamein City

Abstract

Smart cities integrate sustainability into their agenda while integrating technological and informational components as supplementary layers. The purpose of the study is to enrich the understanding of how a smart city affects its sustainable development as a tourist destination. Consequently, this study aims to determine the effect of the smart city dimensions on the sustainable development of a tourism destination from a residents' perspective. The objective of the current study was attained using the quantitative approach. The hypotheses proposed in this study were validated by utilizing Structural Equation Modelling (SEM) with the assistance of Partial Least Squares (PLS). The findings resulted from the data collected with the help of an online questionnaire distributed to 256 residents of New Alamein City, which is being developed as a smart city by the government of Egypt. The study found that the five dimensions (smart governance, smart people, smart mobility, smart economy, and smart environment) are significant predictors of the sustainable development of New Alamein City. Ultimately, the study proposed several implementations to guide policymakers, urban planners, and stakeholders in promoting the sustainable development of New Alamein as a smart tourism destination.

Printed ISSN 2357-0652 **Online ISSN** 2735-4741

1. Introduction

The term "smart city" is used to describe cities that are enabled by technology in multiple ways. The objective of constructing a smart city is to establish a city that can effectively monitor its infrastructure and optimize the utilization of its resources (Moreno et al., 2017). Smart cities and their impact on tourism development have gained increasing attention recently. Several studies (Pencarelli, 2020; Baggio et al., 2020; Della et al., 2017) have investigated the advantages of smart sustainable destinations, which offer promising prospects for the growth of the travel and tourism sector by generating new business opportunities. These encompass hotels, restaurants, transportation, and tourist attractions, all of which derive advantages from smart cities' enhanced standard of living. The notion of smart cities has benefited destinations aspiring to transform into smart tourist destinations. With the ongoing expansion of the global smart cities movement, the tourism sector is finding it increasingly convenient to embrace smart technologies to monitor and oversee tourism activities while promoting environmental sustainability. Smart tourism destinations are established based on the principles of smart cities, incorporating smartness into different aspects such as transportation, everyday life, administration, economy, and the environment (Lee et al., 2020). The tourism sector and smart cities have a mutually beneficial relationship, each vital in developing the other.

Recently, there has been a trend to combine the terms "smart city" and "sustainable development" to improve the quality of life for local residents in modern cities. The goal is to create cities that lead the way toward a prosperous and eco-friendly future. While the primary focus of smart cities is enhancing the residents' quality of life, there is also a need to prioritize sustainable development, which is a significant concern for cities worldwide (Ismagilova et al., 2020). The proliferation of smart cities terminology has led to the exploration of incorporating sustainable strategies and leveraging the rapid progress of new technologies for sustainable development. (De Falco, 2019; Nam & Pardo, 2011; Toppeta, 2010). Therefore, it is important to understand how smart cities can be viewed as a driving factor in achieving sustainability goals in tourism destinations.
Most studies on smart cities have concentrated on conceptualization, drawing on the insights of disciplines like public administration, information science, and urban development to map out the meanings, components (Meijer & Thaens, 2018; Silva et al., 2018; Bifulco et al., 2018; Hollands, 2015; Mosannenzadeh & Vettorato, 2014). Others focused on smart city dimensions (Al Sharif & Pokharel, 2022; Bajdor & Starostka-Patyk, 2021). This study aims to examine smart cities as one of the most important and future-oriented approaches for the sustainable development of tourism destinations. In the absence of a standardized evaluation system for determining the extent to which smartness contributes to sustainability and vice versa, this study proposed a model to investigate the effect of the six dimensions of a smart city (smart governance, smart living, smart people, smart mobility, smart economy, and smart environment) on the three pillars of sustainable development (Environmental, social, and economic). For this study, the city of New Alamein was the case. Considered one of Egypt's fourth-generation cities, it is characterized by large modern projects, including international commercial centers, residential and tourism skyscrapers, hotel chains, and the latest technological and urban projects. To summarize, the study aims at:

- filling a crucial gap in the literature by proposing a model to investigate the relationship between the dimensions of smart cities and the pillars of sustainable development.
- focusing on the six dimensions of smart cities (smart governance, smart living, smart people, smart mobility, smart economy, and smart environment).
- Examining the impact of smart city dimensions on the three pillars of sustainable development of New Alamein city.

2. Literature Review

2.1 Smart City

The concept of a "smart city" is relatively recent and lacks a singular definition due to its broad scope. Nevertheless, the literature contains numerous proposals that reflect the idea of a smart city. An examination of the literature has shown that multiple efforts have been undertaken to establish a clear definition of a smart city. Various terms have been used to describe the idea of a smart city, including "wired city" (Targowski, 1990), "digital city" (Tan, 1999), "ubiquitous city" (Shin, 2009), "sensing city" (Mone, 2015), and "information city" (Fietkiewicz et al., 2017; Sproull and Patterson, 2004; Stolfi and Sussman, 2001). Authors in the majority of publications strive to establish a clear definition of a smart city, with a particular emphasis on the technological dimension (Winkowska et al., 2019). A smart city is an urban development that incorporates various Information and Communication Technologies (ICT) solutions to effectively manage the resources of the city (Guo et al., 2017). Peng et al. (2017) define a smart city as utilizing advanced technology such as mobile networks, wireless sensors, intelligent cars, smart meters, smartphones, and data storage technologies. The significance of technology is emphasized in these definitions of smart cities.

Nevertheless, the transformation into a smart city relies not solely on technology. A smart city encompasses more than just technological advancements; it also prioritizes the well-being and involvement of its residents. Ortiz-Fournier et al. (2010) incorporated residents within their definition in this particular context. They contend that intelligent urban solutions should be crafted with the welfare and preferences of citizens and residents as the primary consideration. Given that they will ultimately be the end users, it is imperative that the solutions consistently enhance their quality of life. Hence, there is an increasing prevalence of strategies that involve various stakeholders, including end-users, collaborating to develop smart city solutions that generate mutual advantages (Pereira et al., 2020; Paskaleva, 2015). Consequently, the British Department for Business Innovation and Skills (BIS) has endeavored to establish a uniform terminology for the smart city concept. The BIS states that a smart city is the successful combination of physical, digital, and human resources to establish an environment that promotes a sustainable and prosperous future for its Citizen (The British Standard Institution, 2014).

A smart city is a city that harnesses the power of human capital, social capital, and ICT to drive sustainable economic development and quality of life through effective community-led management (Caragliu et al., 2023). Smart City is an intelligent, autonomous, and people-centric city at the forefront of the economy, human resources, governance, mobility, environment, and social life. Kurniawiati et al. (2019) identified six key indicators for adopting smart cities: smart governance, smart living, smart people, smart mobility, smart economy, and smart environment (See

Figure 1). *Smart Governance* encompasses the engagement of citizens in political processes, providing services to residents, and using electronic government systems. In addition, it frequently pertains to implementing cutting-edge technologies, such as e-democracy or e-government. (Tomor et al., 2019). *Smart Living* encompasses various elements that significantly improve residents' overall well-being, including health, culture, housing, tourism, safety, and more. Consequently, enhancing these characteristics results in a life that is more balanced, gratifying, and accomplished (Shami et al., 2022). *Smart people* are crucial in differentiating digital cities (Azkuna, 2012). The residents demonstrate high levels of intelligence regarding their educational attainment and expertise. They also place great importance on social cooperation, as evidenced by their active participation in public life and their ability to engage with other nations (Madkour et al., 2015). *Smart Mobility* encompasses providing new, innovative, safe, energy-efficient, nonpolluting, and affordable transportation options to urban residents, integrating these technologies into their daily lives (Giffinger et al., 2007). Furthermore, it is essential to have an ICT infrastructure that enables all citizens to process and share information instantly from any location within the city while commuting (Azkuna, 2012). *smart economy* refers to cities with advanced industries, particularly those that utilize information and communication technology (ICT) in manufacturing and construction (Giffinger & Gudrun, 2010). *Smart Environment* refers to the application of innovative technologies to conserve and safeguard the natural environment of a city (Jnr et al., 2018). Trust and security characterize a smart environment, the utilization of information and communication technology (ICT) to improve municipal safety, and cultural initiatives to digitize traditional assets (Azkuna, 2012).

Figure 1. Smart City Dimensions, adopted from: Elfiky, 2019

2.2 Sustainable Development

Sustainable development has become a subject of interest in academia, public institutions, and private organizations (Xu et al., 2020; Sachs et al., 2019; Silvestre & Ţîrcă, 2019). The Brundtland Report, published in 1987 by the World Environment

and Development Commission, defined sustainable development as the kind of development that fulfills the current generation's requirements without jeopardizing future generations' ability to fulfill their requirements. Furthermore, some perspectives suggest that sustainable development relies on harmonizing the human development requirements and ecological equilibrium requirements (Lele, 1991). In other words, sustainable development necessitates harmonizing social advancement, economic expansion, and environmental preservation (refer to Figure 2). This is crucial for ensuring the long-term prosperity of humanity, not only in specific regions but also worldwide. Cities serve as catalysts for promoting sustainable development. It is where ideas, business, culture, science, and prosperity flourish. Smart cities have the potential to provide economic and social opportunities for individuals. However, this can only be achieved in cities that are already prosperous, able to support people in stable employment, and where the availability of land is not strained by rapid growth.

Sustainability is an urgent concern in the tourism industry as well on a global basis. The World Tourism Organization (UNWTO) acknowledges these principles. It defines sustainable tourism as a form of tourism that considers its present and future economic, environmental, and social impacts while striving to fulfill the needs of tourists, industries, the environment, and other hosts (UNWTO, 2018). Sustainability plays a crucial role in driving the growth of the tourism industry. Developed and developing countries must adapt their strategies to the evolving global marketing competition in order to capitalize on their competitive advantages due to the growing demand for tourism (Bieger et al., 2009).

Figure 2. The Triple Bottom Line of Sustainable Development, adopted from: Sandhu et al., 2014

Smart tourism destinations (STDs) can be developed more sustainably by following the principles of sustainable development. A smart destination is described as "An innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of the tourist area, accessible to everyone, which facilitates the visitors' interaction with and integration into their surroundings, increases the quality of the experience at the destination, while also improving the quality of life of its residents" (Gretzel, 2018, 175). STDs can be developed in a way that benefits local communities, tourists, and the environment by giving priority to

environmental protection, economic sustainability, social equity, community participation, intergenerational equity, an integrated approach, and precautionary principles. STDs can promote sustainable tourism practices, contributing to the well-being of local communities and the environment. This can help achieve sustainable development goals, a long-term process requiring an integrated and holistic approach to decision-making (Lee et al., 2020). Not only do STDs improve the quality of life for city residents by addressing issues and monitoring infrastructure in real-time, but they also provide tourists the chance to find unique places to visit unique goods and services when needed. (Lee et al., 2020). Hence, it is important to understand the effect of the dimensions of smart cities on the sustainable development of tourism destinations, especially in emerging smart cities such as New Alamein City.

2.3 New Alamein City

The city of New Alamein is situated within the administrative boundaries of Marsa Matrouh Governorate. It spans a distance of 48 km from the international road connecting Alexandria and Matrouh. It is the first city on the North Coast with a population of one million and is regarded as one of the fourth-generation cities. The city resembles the New Administrative Capital regarding the scale of its global projects, which were constructed within Egypt's top tourist cities. It encompasses international commercial centers, as well as residential and tourist towers. The area is partitioned into three distinct sectors: the international tourism sector, situated along the Mediterranean Sea coastline; the historical or archaeological sector, located in close proximity to the Alamein Cemetery; and the urban or residential sector, positioned to the south of the Alexandria-Matrouh international road. New Alamein City, established in 2022, will transform the entire North Coast's map and its founding concept. Unlike the usual trend of being a seasonal destination, this residential city will attract residents year-round (New Alamein City, 2022).

The city of El Alamein stands out as a hub of technological and urban innovation in the Middle East, boasting a range of pioneering projects that redefine standards in various sectors. Here are examples of the key projects that contribute to its uniqueness: drinking water production, plant with condensation technology, New Alamein towers, coastal road development, Orascolia sewage and desalination plant, wave barriers Project, crop plantation project, international corniche, housing development, and high-speed electric train (New Alamein City project, 2018).

The tourism sector in New Alamein is evidently diverse and rich, encompassing various areas that cater to different preferences and interests of visitors. Each area offers unique attractions and amenities, contributing to the overall appeal of the city as a tourism destination. Here's a brief overview of each area (New Alamein City, 2022):

- Lake El Alamein area (Hotels District): This district likely serves as a hotspot for tourism accommodation, featuring a concentration of hotels and resorts overlooking Lake El Alamein. Visitors can enjoy scenic views, water activities, and relaxation in this lakeside setting.
- City Center: The city center is likely a bustling hub of activity, offering shopping, dining, entertainment, and cultural experiences. It may include landmarks, museums, galleries, and commercial establishments that showcase the city's heritage and modernity.

- Distinguished Residential District: This district likely comprises upscale residential areas with luxurious amenities and facilities. It may attract high-end tourists seeking exclusive accommodations and leisure options.
- Al Alamein Gardens District: It may be characterized by green spaces, parks, and gardens, offering opportunities for recreation, relaxation, and outdoor activities amidst nature.
- Al Fanara Marina: It likely serves as a marina and waterfront promenade, offering access to boating, yachting, and water sports activities. It may also feature waterfront dining, shops, and entertainment venues.
- Conference Center (Private Resort): This area may cater to business tourism and events, offering conference facilities, meeting venues, and accommodation options tailored to corporate travelers and event attendees.
- Recreational District: It likely includes leisure facilities such as amusement parks, sports complexes, and recreational centers, providing entertainment and activities for visitors of all ages.
- Cultural Center: The cultural center may display the city's cultural heritage, arts, and traditions through museums, theaters, galleries, and cultural events.
- Tourist Housing: This area may offer diverse accommodation options for tourists, including vacation rentals, guesthouses, and serviced apartments, catering to different preferences and budgets.
- Masaken Al Buhaira District: It might be a residential area with a focus on waterfront living, offering residential properties with views of lakes or water bodies.
- Fairgrounds Area: This area may host events, exhibitions, fairs, and festivals, attracting visitors and showcasing local products, industries, and cultural offerings.

The diverse range of tourism areas in New Alamein reflects its multifaceted appeal as a tourism destination, offering something for every type of traveler, whether they seek relaxation, recreation, cultural experiences, or business opportunities. Each area contributes to the overall tourism landscape of the city, making it an attractive and dynamic destination for visitors from around the world. Overall, the combination of innovative technologies, sustainable practices, and diverse urban amenities in New Alamein City underscores its status as a modern and forward-thinking urban center. These important projects contribute to the city's appeal as a desirable place to live, work, and visit while setting a benchmark for future urban developments in Egypt and beyond.

3. Methodology

3.1 Research Model and Hypotheses

According to Jasrotia and Gangotia (2018), smart cities can serve as a means to develop smart tourism destinations. Smart tourism destinations refer to smart cities that utilize cutting-edge innovations and information technology to provide enjoyable experiences for tourists. Consequently, smart tourism is a fundamental part of smart cities. Designing and implementing sustainable plans for smart city development is critical, and it will eventually lead to smart, sustainable tourism destinations. Hence, six independent factors with one dependent factor were proposed to form the structural model of this study, as depicted in Figure 3. This approach could provide valuable insights into the interplay between various elements crucial for the sustainable development of tourist destinations within smart cities.

3.1.1 The Association between Smart Governance and Sustainable Development

Tourism destination management is a set of structures, institutions, and practices that govern socio-economic relations between the public and private sectors and are used to develop and implement strategies for sustainable and competitive tourism destinations (UNWTO, 2011). Governance sustainability is facilitated by citizens' willingness to make decisions, collaborate, and use different tools, technologies, and data exchange facilities to improve quality of life. For a stable administration in a smart city, it is important to align governance with larger societal challenges (Sørensen & Torfing, 2018). Good governance and community involvement are at the top of the essential requirements for sustainable urban planning. Therefore, the information city, through the implementation of e-management methods, is the right solution (Anthony, 2023). The concept of smart tourism destination governance is to create the enabling conditions and incentives to develop new or enhanced services/ experiences for the benefit of tourists and the quality of life of local communities. This would make destination accessibility more effective and improve the interaction between tourists and the destination at all stages of the tourist experience (Vargas-Sanchez, 2016). In addition, it should support social cohesion and human capital development by facilitating knowledge transfer and developing specific, digital as well as non-digital competencies (Boes et al., 2015). Based on the above, the following hypothesis was formed:
H1: Smart Governance is positively associated with Sustainable Development.

3.1.2 The Association between Smart Living and Sustainable Development

Smart living brings together many aspects of citizens' quality of life (Stegerean et al., 2022). It allows people to reap the benefits of new ways of life. It offers new and innovative solutions to make life more effective, more manageable, more cost-effective, more productive, more integrated, and more sustainable. Smart living can only be implemented in a smart city if it is designed and implemented by Smart People, supported by local higher learning institutions, and supported by the Government. It is a combination of E-democracy, E-governance, ICT, and IOT in a 24/7 framework across all domains of living activities in any smart city (Kumar, 2020). In addition, Smart living combines ICT, IoT, and traditional domain-specific instruments of various age cohorts of living to achieve coordinated, efficient, and effective management, development, and conservation that enhances ecological, social, and biophysical well-being, psychological well-being, and economic well-being without compromising the sustainability of the development ecosystem and stakeholders (Kumar, 2020). Thus, the following hypothesis has been defined:

H2: Smart Living is positively associated with Sustainable Development.

3.1.3 The Association between Smart People and Sustainable Development

Cities are built on people, by people, and for people. Therefore, sustainable measures will need to make sense to people living in cities, making their lives more meaningful. Furthermore, people are the drivers and beneficiaries of sustainability (UNECEC, 2020). Smart people could play a major role in smart living indicators as well as smart governance, meaning they can reflect on their lives and contribute to achieving their needs. It is only by making people part of a city system and allowing them to be part of decision-making, planning, and urban management that sustainability and livability can be achieved. In a sustainable smart city, people will convert from ownership to

use, from consumers to prosumers, creating a sense of belonging, responsibility, community spirit, and a team-working culture among citizens. This will lead to more creativity and innovation in any city, as the decision-making comes from the people themselves (Alkamoosi, 2019). Hence, the researcher proposed the following hypothesis:

H3: Smart People are positively associated with Sustainable Development.

3.1.4 The Association between Smart Mobility and Sustainable Development

Smart mobility is an essential component of the smart city as urban transport systems need to become more efficient and sustainable. Smart mobility has become a prominent topic in sustainability programs in response to the effects of urban transport systems in cities. Smart mobility must combine technological and social innovation (Moss Kanter & Litow, 2009) and sustainability (Banister, 2008). Kosmidis & Müller (2024) examined the compatibility of smart mobility projects with sustainable urban mobility in their study. They concluded that smart mobility measures support sustainable mobility. As a result, they focus on sustainable development, such as promoting active travel, reducing transport emissions, and making urban travel more efficient (e.g., by reducing travel time). According to Aletà et al. (2017), the smart mobility axis is closely linked to environmental sustainability. Smart mobility encompasses many activities that improve the environment, including reducing the number of private vehicles and integrating transport modes that reduce emissions. Based on the above, the following hypothesis was proposed:

H4: Smart Mobility is positively associated with Sustainable Development.

3.1.5 The Association between Smart Economy and Sustainable Development

Smart economy is a process of exchanging data and information through various communication networks, where many applications contribute to the growth of various economic activities. Smart economy helps identify the best ways to conserve and develop essential resources to preserve their continuity and conserve them for future generations through the green economy (Davies, 2011). Today, a country's sustainability and international competitiveness are highly dependent on the degree to which its economy is smart, which is defined as having a high level of information and communication technologies (Industry 4.0), smart grid, innovation networks, high technology production, and a high level of comfort for both people and the environment (Mazurenko, 2014). Kumar & Dahiya (2017) defined the goals and features of a smart economy in their study; the most significant one is that smart economy seeks to achieve and demonstrates a high capability to transform the Smart City by harnessing the power of ICT in all aspects of its economic operations. Therefore, a smart city with a smart economy has a well-defined long-term economic strategy acceptable to civil society, the public and private sectors, and other stakeholders. In addition, the appreciation, preservation, and promotion of local culture and heritage are at the heart of a smart economy that promotes it, manages it effectively, encourages the creative development of local arts, culture, and heritage, and connects it to the promotion and development of sustainable tourism. Consequently, the following hypothesis was established:

H5: Smart Economy is positively associated with Sustainable Development

3.1.6 The Association between Smart Environment and Sustainable Development

Among the most significant sustainability issues that cities are currently confronting are the intensifying urban metabolism and its consequences on climate change. Two perspectives are used to examine the sustainability of the urban environment: one looks at energy and preventing consumption and involving renewable energy, technology grids, pollution management and control, green buildings, efficient use of resources, and so on. Other interconnected urban grid and resource management aspects include waste management, street lighting, drainage systems, water resource monitoring, pollution reduction, and water quality improvement. (Aleta et al., 2017). In a smart city, clean water scarcity, poor air quality, reduced natural reserves, and imbalances in the ecosystem need to be addressed in combination with cutting-edge technologies for smart cities (Rani, 2021). It is important to adopt sustainable development practices for smart city projects. Smart cities have benefitted from the rise in big data generated by IoT devices, which has made monitoring and prevention more efficient. Visualization approaches are needed to monitor and resolve various problems. To reduce potential risks, such as fire, leaks, etc., smart cities need monitoring systems that provide decision-makers with useful information (Lavalle et al., 2020). Hence, the following hypothesis was formed:

H6: Smart Environment is positively associated with Sustainable Development.

Figure 3. Structural Model, source: own elaboration

3.2 Sampling and Data Collection

A quantitative approach has been adopted to fulfill the purpose of the current study. The main objective of this study is to investigate the impact of smart governance, smart living, smart society, smart mobility, smart economy, and smart environment on the sustainable development of New Alamein City. A web-based questionnaire consisting of 36 items was used to obtain data from study participants. Data was obtained from 256 residents of New Alamein City (including residents, decision-makers, people with management profiles in different sectors, and employees in the tourism sector) (see Table 1). Bentler (1989) proposed a sample size of (5:1) to the number of variables. Many researchers have tested using subject-to-item ratios of 10:1 or lower, a commonly used rule of Thumb for determining the appropriate sample size. Since there are thirty-six variables, 360 questionnaire forms were distributed and 256 valid forms made up approximately 71% of the total distributed questionnaires were collected. Thus, the sample size is sufficient for model assessment. Data was collected between December 2023 and February 2024.

3.3 Measures

A questionnaire was prepared based on the literature review. Respondents were asked to rate each statement on a five-point Likert scale ranging from "1-strongly disagree" to "5-strongly agree" for each variable. The questionnaire included three sections; section one focused on the demographic information of the respondents (age, gender, and profession.), whereas section two covered the smart city dimensions, and the third section covered the sustainability dimensions. To ensure validity, the questionnaire items were adapted from previous relevant literature. Items for the smart governance dimension were adapted from (Anthopoulos et al., 2019; Tahir and Malek, 2016); items for the smart living dimension were adapted from (Kumar and Dahiya, 2017; Tahir and Malek, 2016); items for the smart people dimension were adapted from (Mishra et al., 2017; Tahir and Malek, 2016), items for the smart mobility dimension were adapted from (Jr et al., 2017; Giffinger and Gudrun, 2010), items for the economy dimension were adapted from (Kumar and Dahiya, 2017; Tahir and Malek, 2016), Items for the environment dimension were adapted from (Kumar and Dahiya, 2017; Giffinger and Gudrun, 2010). Finally, the questionnaire items for sustainable development were sourced from the studies conducted by Lee (2013) and Ciegis et al. (2009).

3.4 Statistical Procedure

Utilizing the SmartPLS software (V.4.1.0.1) the suggested study model was tested using the partial least squares (PLS) approach, which is well suited for testing predictive models. A valid factor analysis was employed to guarantee the validity of all construct items. Moreover, composite reliability (CR) was used to verify the reliability. Finally, Convergent and discriminant validity tests were also conducted.

4. Results and Findings

4.1 Sample Profile

Results in table (1) showed that 62.5% of respondents were male, and 37.5 were female. Regarding their age, 69.5% ranged between 36-50 years old, 25% ranged between 21-34 years old, and 5.5% were less than 20 years old. Regarding their profession, the results revealed that 50% were employed in the private sector, 30% in the tourism sector, 14.8% in the management sector, and lastly 5% were students.

Table (1) Sample profile

Characteristics	Frequency	
	N = 256	(%)
Gender		
Male	160	62.5
Female	96	37.5
Age		
Less than 20	14.08	5.5
21-34	64	25
36-50	177.92	69.5
Profession		
Tourism Sector	76.8	30
Private Sector	128	50
Student	12.8	5
Management Sector	37.8	14.8

4.2 Measurement Model Assessment

This study tested the associations proposed using the partial least squares-structural equation modeling technique (PLS-SEM). PLS-SEM is a multi-dimensional statistical modeling technique that allows for the simultaneous analysis of a set of items in a conceptual model (measurement items) as well as structural constructs (Rasoolimanesh et al., 2015). Based on a comprehensive literature review, 36 items corresponding to the study's model were initially defined. The analysis revealed that eight items (SGOV4, SLIV1, SLIV2, SLV5, SPPL1, SMOB4, SECO1, SEVN5) had loadings below 0.7; therefore, they were removed to strengthen the scale validity (Hair et al., 2019).The final accepted scale included 28 items with loadings ranging from 0.700 to 0.969 (Table 2). According to the reliability and validity results presented in Table 2, Cronbach's alpha is between 0.801 and 0.906, which is acceptable above 0.7 (Hair, 2011). The measures also demonstrated robust internal consistency as measured by the composite reliability (CR). The composite reliability of the study measure ranged between 0.87 and 0.907 and was higher than the proposed threshold value of 0.70 (Hair, 2011). Furthermore, the average variance extracted (AVE) for each variable was greater than 0.50, matching Fornell & Larcker (1981) standards verifying convergent validity. Additionally, the variance inflation factor (VIF) ranged between 1.609 and 4.903, matching Hair et al. (2019) criteria in evaluating the collinearity of the formative indicators (VIF) of indicators should be lower than the threshold of 5. As a result, the measurement model employed in this study fits additional analysis.

Table (2) Measurement Model Assessment

Factors	Loading	Cronbach's alpha	CR	AVE	VIF
Smart Governance (SGOV)		0.906	0.934	0.78	
Promotes ICT, innovation, and online public services.	0.895				3.426
Provides website availability for governance.	0.941				4.903
Offers strategic plans to promote e-government.	0.877				2.648
Transparent governance and citizen participation.	0.816				2.671
Smart Living (SLIV)		0.801	0.87	0.627	
Provides emergency response facilities such as ambulances and emergency and healthcare facilities.	0.701				1.623
It guarantees individual safety and provides better housing quality.	0.827				2.025
Provides 24/7 electric and water supply.	0.781				1.956
Provides online payment facilities.	0.851				1.868
Smart People (SPPL)		0.873	0.914	0.782	
Presence of plans for ICT use and digital development in classrooms.	0.855				2.116
Collaboration between companies and knowledge centers.	0.969				3.227
Presence of Plan for research, development, and innovation.	0.821				2.435

Smart Mobility (SMOB)		0.815	0.878	0.643	
Provides international accessibility.	0.762				1.584
Innovative and safe transport systems are available.	0.736				1.603
Traffic management and parking systems are available.	0.84				2.002
Provides mobile phone networks and mobile Internet.	0.862				1.99
Smart Economy (SECO)		0.865	0.907	0.709	
Design strategies for the economic development of the city.	0.791				2.452
Retains and attracts talent and promotes creativity.	0.794				2.409
Provides support for entrepreneurship.	0.886				4.16
Develop business spaces and collaborations.	0.892				4.004
Smart Environment (SENV)		0.875	0.904	0.612	
Attractivity of natural conditions.	0.754				3.456
Supports pollution reduction.	0.807				3.357
Provides environmental protection.	0.86				4.495
Provides sewerage and wastewater treatment.	0.716				1.85
Promotes sustainable resource management.	0.784				3.833
Disaster prediction and early warning response systems are available	0.767				2.306
Sustainable Development (SUDV)		0.859	0.915	0.783	
Smart city enables an economically sustainable tourist destination.	0.918				3.428
Smart city supports a socially sustainable tourist destination.	0.804				1.609
Smart city creates an environmentally sustainable tourist destination.	0.928				3.543

Additionally, the scale's discriminant validity was evaluated, as indicated by Table 3. The factors in the matrix diagonals in this validity test indicate the degree to which the factors differ by representing the off-diagonal items in their corresponding row and column. With a squared correlation coefficient less than AVE, the seven variables utilized in this investigation passed the discriminant validity test (Fornell & Larcker, 1981).

Table (3) Discriminant Validity Test Results (Fornell-Larcker criterion)

Factors	SECO	SENV	SGOV	SLIV	SMOB	SPPL	SUDV
SECO	**0.842**						
SENV	0.725	**0.782**					
SGOV	0.566	0.378	**0.883**				
SLIV	0.565	0.799	0.617	**0.792**			
SMOB	0.737	0.786	0.401	0.652	**0.802**		
SPPL	0.66	0.505	0.688	0.553	0.736	**0.884**	
SUDV	0.517	0.817	0.366	0.671	0.741	0.448	**0.885**

4.3 Structural Model Assessment

Based on the SmartPLS results, two indicators were tested for model fit. The Standardized Root Mean Square Ratio (SRMR) was 0.063 (Good if < 0.08), and the Normalized Fit Index (NFI) was estimated to be 0.896 (accepted if near 0.90). The R^2 value showed that the model explained approximately 76 % of the variability in leveraging smart cities to create sustainable tourism destinations, which is considered substantial (Hair et al., 2011). Path coefficients and associated p values were calculated to determine the causal relationship between each hypothesis in the study's structural model. To conduct this analysis, 5,000 sub-samples were selected using a bootstrapping approach described by Hair et al. (2011). The path coefficients analysis revealed significant direct impacts in the predicted direction for five causal relationships, with statistical significance at $p < 0.05$. This confirms five hypotheses in the study. The results, as presented in both Table 4 and Figure 4, indicate the strong significance of the anticipated relationships and lend support to the study hypotheses: Smart governance (β = 0.379, p =0.000), Smart people (β = 0.246, p = 0.032), smart mobility (β = 0.587, p = 0.000), smart economy (β = 0.455, p = 0.001), smart environment (β = 0.854, p = 0.000). However, However, one hypothesis, (H2) Smart Living (β = -0.235, p = 0.027), did not demonstrate the expected positive relationship.

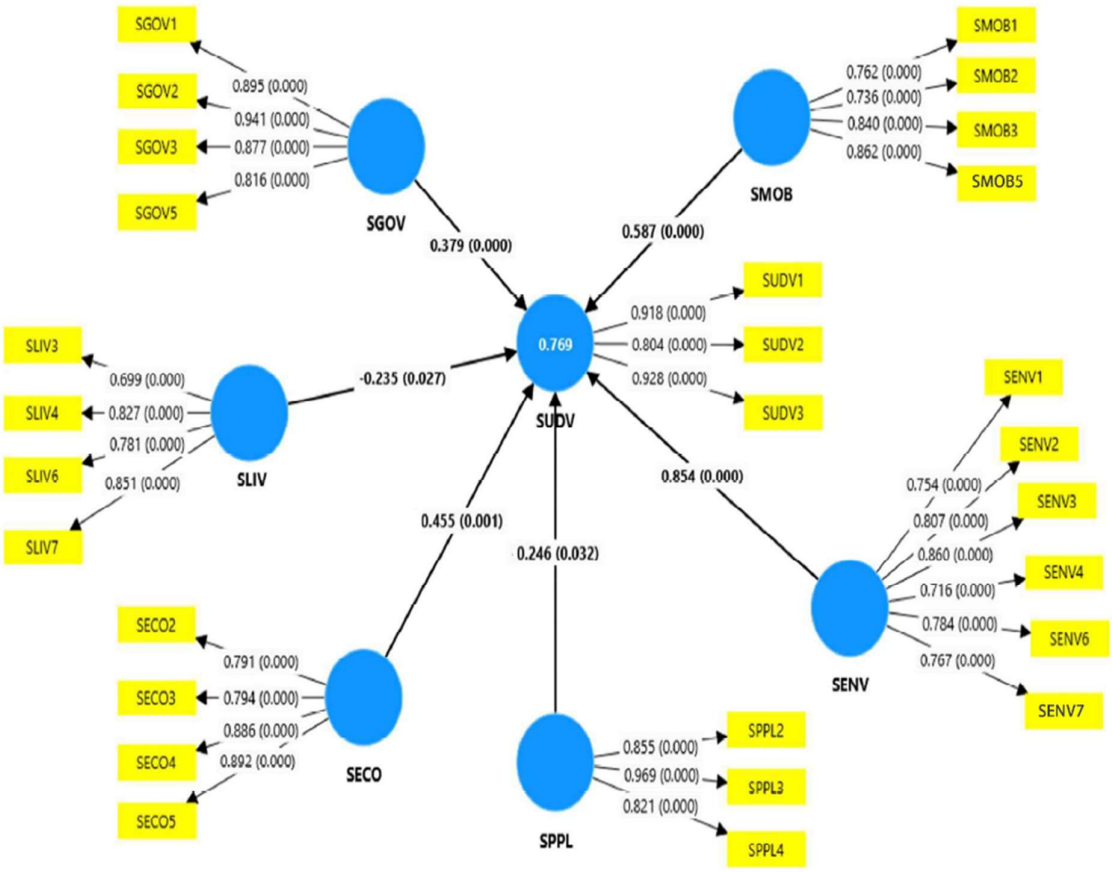

Figure (4) Structural Model Results

Table (4) Results of Hypothesis testing

Hypothesis		Path coefficient	*p*-value	Supported
H1	Smart Governance > Sustainable Development	0.379	0.000	Supported
H2	Smart Living > Sustainable Development	-0.235	0.027	Not supported (different sign)
H3	Smart People > Sustainable Development	0.246	0.032	Supported
H4	Smart Mobility > Sustainable Development	0.587	0.000	Supported
H5	Smart Economy > Sustainable Development	0.455	0.001	Supported
H6	Smart Environment > Sustainable Development	0.854	0.000	Supported

5. Discussion

This study examined the correlation between smart cities and sustainable development. More specifically, the contribution of technology application in accomplishing the sustainable development of tourism destinations. This approach to studying and understanding the interplay between various elements is valuable as it can provide insights into creating sustainable and efficient systems for tourism destinations within the broader context of smart cities.

The results revealed that smart governance positively influences sustainable development (H1, β = 0.379, p =0.000). This result aligns with previous studies' findings (Anthony, 2023; Sørensen & Torfing, 2018). According to the researchers, smart governance aims to create a better future for public services, community leadership, and continuous innovation. Smart governance uses technology to support an efficient agenda, improved planning, and better decision-making. Furthermore, this study's results support the previous study's findings (Alkamoosi, 2019) which showed that smart people are positively associated with sustainable development (H3, β = 0.246, p = 0.032). According to Anthopoulos et al. (2019), smart people refer not only to human capital and social capital but also to citizens involvement in city development. Therefore, Creative, inclusive, and environmentally conscious citizens contribute to smart and sustainable cities. Similarly, the results indicate that smart mobility positively influences sustainable development (H4, β = 0.587, p = 0.000). This finding is supported by previous studies (Kosmidis & Müller, 2024; Aletà et al., 2017) emphasizing the importance of smart transportation for sustainable urban development. Smart mobility refers to the local availability of modern, secure, and environmentally friendly transport systems utilizing technology to improve transportation efficiency and reduce environmental impact (Jr et al., 2017; Tahir and Malek, 2016). Additionally, smart economy positively determines sustainable development (H5, β = 0.455, p = 0.001). This could be explained by the fact that a smart economy is associated with a city that values entrepreneurship, innovation, labor market flexibility, and enhanced financial competitiveness (Giffinger et al., 2007). This finding is consistent with the findings of a previous study (Kumar & Dahiya, 2017; Tahir and Malek, 2016; Mazurenko, 2014), in which the authors stated that smart economies promote competitiveness, which is important not only for attracting investors but also for attracting citizens to secure a prominent global position. Thus, increased economic growth will boost the city's potential to attract

investment and firms (Kumar and Dahiya, 2017). The results also indicate that smart environment positively predicts sustainable development (H6, $\beta = 0.854$, $p = 0.000$). This aligns with previous studies emphasizing the importance of environmental protection and sustainable resource use for urban sustainability (Anthopoulos et al., 2019). Smart environment initiatives focus on reducing pollution, sustainable resource management, and energy efficiency (Kumar and Dahiya, 2017). Lastly, the results revealed that smart living negatively influences the adoption of sustainable development. Thus, (H2, $\beta = -0.235$, $p = 0.027$) was not supported. This might be because the city is still under construction, particularly in new smart residential districts, leading residents not yet to perceive the development in this aspect.

6. Conclusion

Data was gathered from residents of New Alamein City using a survey tool to confirm the proposed model dimensions. A partial least square-structural equation modeling technique (PLS-SEM) was used to analyze the data. The results of this study illustrated that smart governance, smart people, smart mobility, smart economy, and smart environment are significant predictors of the sustainable development of New Alamein City as a tourism destination. The study contributed to filling a crucial gap in the literature by proposing a model to investigate the relationship between the dimensions of smart cities and the pillars of sustainable development. This is an important endeavor, especially considering the increasing significance of smart city initiatives in urban planning and the growing importance of sustainability in tourism development. Further, the study utilized a comprehensive approach to understanding the various facets of smart urbanization by focusing on the six dimensions of smart cities (smart governance, smart living, smart people, smart mobility, smart economy, and smart environment). This multidimensional perspective allowed a nuanced analysis of how different aspects of smart cities contribute to sustainable tourism development. Additionally, the study provided insights into the overall sustainability performance of New Alamein City as a tourism destination in the context of smart cities by examining the impact of smart city dimensions on the three pillars of sustainable development (environmental, social, and economic). This holistic approach is essential for identifying both the potential benefits and challenges associated with smart city initiatives in fostering sustainable tourism development. Consequently, the paper bridged research gaps and demonstrated the need for more empirical and theoretical advances in smart cities and their implications for sustainable tourism development.

Ultimately, the study proposed some implications that can guide policymakers, urban planners, and stakeholders in making informed decisions to promote the sustainable development of New Alamein as a smart sustainable tourism destination:

- Ensure that urban planning in smart cities includes provisions for sustainable tourism infrastructure such as green spaces, efficient transportation systems, waste management, and renewable energy sources.
- Implement smart technologies such as IoT sensors, data analytics, and AI to monitor and manage energy consumption, water usage, waste generation, and traffic flow in real-time. This can help optimize resource allocation and reduce environmental impact.
- Encourage the use of electric vehicles, bicycles, and public transportation through incentives, infrastructure development, and awareness campaigns. Establishing

car-free zones and pedestrian-friendly areas can enhance the visitor experience while reducing carbon emissions.

- Utilize new technologies to protect and preserve the natural and cultural assets that attract tourists to the area. Implement measures to mitigate the impact of tourism activities on fragile ecosystems, historical sites, and indigenous communities.
- Involve local communities in the planning and decision-making process to ensure that tourism development benefits residents and respects their cultural traditions. Encourage community-based tourism initiatives that empower local businesses and artisans.
- Raise awareness about sustainable tourism practices through educational programs, signage, and information centers. Encourage responsible behavior among tourists, such as minimizing waste, respecting wildlife, and supporting local economies.
- Provide incentives for hotels, restaurants, and other tourism-related businesses to adopt eco-friendly practices such as recycling, energy efficiency, and sustainable sourcing. Certifications like LEED or Green Globe can help identify environmentally responsible establishments.
- Establish monitoring mechanisms to assess the environmental, social, and economic impact of tourism development over time. Use data-driven insights to refine strategies and ensure continuous improvement toward sustainability goals.
- Foster collaboration among all stakeholders (government agencies, private sector partners, NGOs, and academic institutions) to leverage resources and expertise in advancing sustainable tourism initiatives. Build partnerships with international organizations for knowledge sharing and best practices exchange.

Finally, it is crucial to maintain that every study has limitations, and this study is no exception. First, while this study used the quantitative approach, future research could use the qualitative approach to understand this topic better. Second, the study was applied in New Alamein City; further research could be applied in any other smart city to enhance the results' generalization. Third, data was gathered from citizens of New Alamein City; nevertheless, to provide a more comprehensive overview, additional information must be gathered from smart city planners and developers, specialists in smart cities, IT professionals, tourism experts, sustainability professionals, and others.

References

Al Sharif, R., & Pokharel, S. (2022). Smart city dimensions and associated risks: Review of literature. Sustainable cities and society, 77, 103542.

Aletà, N. B., Alonso, C. M., & Ruiz, R. M. A. (2017). Smart mobility and smart environment in the Spanish cities. Transportation research procedia, 24, 163-170.

Alkamoosi, N.; Al Ani, M. (2019). The Role of Spirit of Place to Achieve Emotional Smart City. Conference: REAL CORP 2019: IS THIS THE REAL WORLD? Perfect Smart Cities vs. Real Emotional Cities, Karlsruhe, Germany. Available from: https://www.researchgate.net/publication/335715949 [accessed Feb 2024].

Anthony Jr, B. (2023). The Role of Community Engagement in Urban Innovation Towards the Co-Creation of Smart Sustainable Cities. Journal of the Knowledge Economy, 1-33.

Anthopoulos, L., Janssen, M., & Weerakkody, V. (2019). A Unified Smart City Model (USCM) for smart city conceptualization and benchmarking. In Smart Cities and Smart Spaces: Concepts, Methodologies, Tools, and Applications (pp. 247-264). IGI Global.

Azkuna, I. (2012). Smart Cities Study: International Study on the Situation of ICT. Innovation and Knowledge in Cities, 29.

Baggio, R., Micera, R., & Del Chiappa, G. (2020). Smart tourism destinations: a critical reflection. Journal of Hospitality and Tourism Technology, 11(3), 407-423.

Bajdor, P., & Starostka-Patyk, M. (2021). Smart city: A bibliometric analysis of conceptual dimensions and areas. Energies, 14(14), 4288.

Banister, D. (2008). The sustainable mobility paradigm. Transport policy, 15(2), 73-80.

Bentler, P. M. (1989). EQS structural equations program manual. BMDP Statistical Software. *Los Angeles*.

Bieger, T., Beritelli, P., & Laesser, C. (2009). Size matters!-Increasing DMO effectiveness and extending tourist destination boundaries. *Tourism: An International Interdisciplinary Journal*, *57*(3), 309-327.

Bifulco, F., D'Auria, A., Amitrano, C. C., & Tregua, M. (2018). Crossing technology and sustainability in cities' development. Sustainability science, 13, 1287-1297.

Boes, K., Buhalis, D., & Inversini, A. (2015). Conceptualising smart tourism destination dimensions. In Information and communication technologies in tourism 2015: Proceedings of the international conference in Lugano, Switzerland, February 3-6, 2015 (pp. 391-403). Springer International Publishing.

Caragliu, A., Del Bo, C. F., & Nijkamp, P. (2023). "Smart Cities in Europe" Revisited: A Meta-Analysis of Smart City Economic Impacts. Journal of Urban Technology, 30(4), 51-69.

Ciegis, R., Ramanauskiene, J., & Martinkus, B. (2009). The concept of sustainable development and its use for sustainability scenarios. Engineering economics, 62(2).

Davies, A. R., & Mullin, S. J. (2011). Greening the economy: interrogating sustainability innovations beyond the mainstream. Journal of Economic Geography, 11(5), 793-816.

De Falco, S. (2019). Are smart cities global cities? A European perspective. European Planning Studies, 27(4), 759-783.

Della Corte, V., D'Andrea, C., Savastano, I., & Zamparelli, P. (2017). Smart cities and destination management: Impacts and opportunities for tourism competitiveness. European Journal of Tourism Research, 17, 7-27.

Elfiky, I.(2019).A proposed assessment scheme for smart sustainable urban development [Master's Thesis, the American University in Cairo]. AUC Knowledge Fountain.

Fietkiewicz, K. J., Mainka, A., Stock, W. G. (2017). Government in cities of the knowledge society. An empirical investigation of smart cities' governmental websites. Government Information Quarterly, 34(1), 75–83.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18(1), 39-50.

Giffinger, R., & Gudrun, H. (2010). Smart cities ranking: an effective instrument for the positioning of the cities?. ACE: architecture, city and environment, 4(12), 7-26.

Giffinger, R., Fertner, C., Kramar, H., & Meijers, E. (2007). City-ranking of European medium-sized cities. Cent. Reg. Sci. Vienna UT, 9(1), 1-12.

Gretzel, U. (2018). From smart destinations to smart tourism regions. Investigations Regionals. 171-184.

Guo, J., Ma, J., Li, X., Zhang, J., Zhang, T. (2017). An attribute-based trust negotiation protocol for D2D communication in smart city balancing trust and privacy. Journal of Information Science and Engineering, 33(4), 1007–1023.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. Journal of Marketing theory and Practice, 19(2), 139-152.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European business review, 31(1), 2-24.

Hollands, R. G. (2015). Critical interventions into the corporate smart city. Cambridge journal of regions, economy and society, 8(1), 61-77.

Ismagilova, E., Hughes, L., Dwivedi, Y. K., & Raman, K. R. (2019). Smart cities: Advances in research—An information systems perspective. International journal of information management, 47, 88-100.

Jasrotia, A., & Gangotia, A. (2018). Smart cities to smart tourism destinations: A review paper. Journal of tourism intelligence and smartness, 1(1), 47-56.

Jnr BA., Majid MA., Romli A. (2018). A trivial approach for achieving smart city: a way forward towards a sustainable society. In: 21st Saudi computer society national computer conference (NCC), 1–6.

Jr, B. A., Majid, M. A., & Romli, A. (2017). Green information technology system practice for sustainable collaborative enterprise: a structural literature review. International Journal of Sustainable Society, 9(3), 242-272.

Kosmidis, I., & Müller-Eie, D. (2024). The synergy of bicycles and public transport: a systematic literature review. Transport Reviews, 44(1), 34-68.

Kumar, T. V. & Dahiya, B. (2017). Smart Economy in Smart Cities. In Vinod Kuma, T. M. (Eds.), Smart economy in smart cities, Advances in 21st Century Human Settlements, Springer, Singapore.

Kumar, T. V. (2020). Smart Living in Smart Cities. In Vinod Kuma, T. M. (Eds.), Smart living in smart cities, Advances in 21st Century Human Settlements, Springer, Singapore ¸3-70.

Kumar, T. V., & Dahiya, B. (2017). Smart economy in smart cities. In Smart Economy in Smart Cities (pp. 3-76). Springer, Singapore.

Kurniawati, W., Mussadun, Suwandono, D., Islamey, T. Z. (2019). Local wisdom in malay kampung semarang as representatives of smart environment. Paper presented at the IOP Conference Series: Earth and Environmental Science, 396(1).

Lavalle, A., Teruel, M., Maté, A. & Trujillo, J. (2020). ‘‘Improving sustainability of smart cities through visualization techniques for big data from IoT devices,’’ sustainability, 12(14), 5595.

Lee, P.; Hunter,W.C.; & Chung, N. (2020). Smart Tourism City: Developments and Transformations. Sustainability, 12 (10), 3958.
Lee, T.H. (2013). Influence analysis of community resident support for sustainable tourism development. Tourism Management, 34, 37-46.

Lélé, S. M. (1991). Sustainable development: a critical review. *World development*, *19*(6), 607-621.

Madkour, M., Benhaddou, D., Khalil, N., Burriello, M., & Cline Jr, R. E. (2015). Living campus: towards a context-aware energy efficient campus using weighted case based reasoning. In Workshops at the Twenty-Ninth AAAI Conference on Artificial Intelligence.

Mazurenko, V.P. (2014). Implementation of network paradigm as a guarantee a highly competitive country. Vol. 119. Kyiv: Institute of International Relations of Taras Shevchenko National University of Kyiv. 60-73.

Meijer, A., & Thaens, M. (2018). Urban technological innovation: Developing and testing a sociotechnical framework for studying smart city projects. Urban Affairs Review, 54(2), 363-387.

Mishra, A. P., Sen, A., & Kumar, A. (2017). Exploring Potentials and Challenges in Making Smart Cities in India: A Case Study of Allahabad City, Uttar Pradesh. In Sustainable Smart Cities in India (pp. 123-142). Springer, Cham.

Mone, G. (2015). The new smart cities. Communications of the ACM, 58(7), 20–21.

Moreno, M. V., Terroso-Sáenz, F., González-Vidal, A., Valdés-Vela, M., Skarmeta, A. F., Zamora, M. A., & Chang, V. (2017). Applicability of big data techniques to smart cities deployments. IEEE Transactions on Industrial Informatics, 13(2), 800-809.

Mosannenzadeh, F., & Vettorato, D. (2014). Defining smart city. A conceptual framework based on keyword analysis. TeMA-Journal of Land Use, Mobility and Environment.

Moss Kanter, R., & Litow, S. S. (2009). Informed and interconnected: A manifesto for smarter cities. Harvard Business School General Management Unit Working Paper, 09-141.

Nam, T., & Pardo, T. A. (2011). Conceptualizing smart city with dimensions of technology, people, and institutions. In Proceedings of the 12th annual international digital government research conference: digital government innovation in challenging times, 282-291.

New Alamein City (2022). Available from: https://www.sis.gov.eg/Story/168342/New-Alamein-city?lang=en-us, (accessed November 2023).

New Alamein City project (2018). Available from: https://www.presidency.eg/en, (accessed Nov, 2023).

Ortiz-Fournier, L. V., Márquez, E., Flores, F. R., Rivera-Vázquez, J. C., Colon, P. A. (2010). Integrating educational institutions to produce intellectual capital for sustainability in caguas, puerto rico. Knowledge Management Research and Practice, 8(3), 203–215.

Paskaleva, K., Cooper, I., Linde, P., Peterson, B., Götz, C. (2015). Stakeholder Engagement in the Smart City: Making Living LabsWork. In Transforming City Governments for Successful Smart Cities; Rodríguez-Bolívar, M., Ed. Public Administration and Information Technology. Springer International Publishing: Cham, Switzerland, 8.

Pencarelli, T. (2020). The digital revolution in the travel and tourism industry. Information Technology & Tourism, 22(3), 455-476.

Peng, G. C. A., Nunes, M. B., Zheng, L. (2017). Impacts of low citizen awareness and usage in smart city services: The case of London's smart parking system. Information Systems and e-Business Management, 15(4), 845–876.

Pereira, G. V., Wimmer, M., & Ronzhyn, A. (2020, September). Research needs for disruptive technologies in smart cities. In Proceedings of the 13th International Conference on Theory and Practice of Electronic Governance (pp. 620-627).

Rani, S., Mishra, R. K., Usman, M., Kataria, A., Kumar, P., Bhambri, P., & Mishra, A. K. (2021). Amalgamation of advanced technologies for sustainable development of smart city environment: A review. IEEE Access, 9, 150060-150087.

Rasoolimanesh, S. M., Jaafar, M., Kock, N., & Ramayah, T. (2015). A revised framework of social exchange theory to investigate the factors influencing residents' perceptions. Tourism Management Perspectives, 16, 335-345.

Sachs, J. D., Schmidt-Traub, G., Mazzucato, M., Messner, D., Nakicenovic, N., & Rockström, J. (2019). Six transformations to achieve the sustainable development goals. *Nature sustainability*, *2*(9), 805-814.

Sandhu, S., McKenzie, S., & Harris, H. (2014). Linking Local and Global Sustainability (4). Springer.

Shami, M. R., Rad, V. B., & Moinifar, M. (2022). The structural model of indicators for evaluating the quality of urban smart living. Technological Forecasting and Social Change, 176, 121427.

Shin, D. (2009). Ubiquitous city: Urban technologies, urban infrastructure and urban informatics. Journal of Information Science, 35(5), 515–526.

Silva, B. N., Khan, M., & Han, K. (2018). Towards sustainable smart cities: A review of trends, architectures, components, and open challenges in smart cities. Sustainable cities and society, 38, 697-713.

Silvestre, B. S., & Ţîrcă, D. M. (2019). Innovations for sustainable development: Moving toward a sustainable future. Journal of cleaner production, 208, 325-332.

Sørensen, E., & Torfing, J. (2018). Co-initiation of collaborative innovation in urban spaces. Urban Affairs Review, 54(2), 388-418.

Sproull, L., Patterson, J. F. 2004. Making information cities livable. Communications of the ACM, 47(2), 33–37.

Stegerean, R., Trincă, V., Tămaș, A., & Nistor, R. (2022). The Smart City Concept–Focusing on the Perception of Cluj-Napoca Residents. In Proceedings of the 16th International Management Conference, 158-172.

Stolfi, F., Sussman, G. (2001). Telecommunications and transnationalism: 99 polarization of social space. Information Society, 17(1), 49–62.

Tahir, Z., & Malek, J. A. (2016). Main criteria in the development of smart cities determined using analytical method. Planning Malaysia Journal, 14(5).

Targowski, A. S. 1990. Strategies and architecture of the electronic global village. Information Society, 7(3), 187–202.

The British Standard Institution (2014). Smart City Concept Model-Guide to Establishing a Model for Data Interoperability, London, UK.

Tomor, Z., Meijer, A., Michels, A., & Geertman, S. (2019). Smart governance for sustainable cities: Findings from a systematic literature review. Journal of urban technology, 26(4), 3-27.

Toppeta, D. (2010). The smart city vision: how innovation and ICT can build smart, “livable”, sustainable cities. The innovation knowledge foundation, 5, 1-9.

UNECE (2020). People-Smart Sustainable Cities, United Nations, Geneva.

UNWTO (2011). Annual report. World Tourism Organization (UNWTO), Madrid, Spain. Available at: https://www.e-unwto.org/doi/pdf/10.18111/9789284415366, (accessed November 2023).

UNWTO (2018). Tourism and the Sustainable Development Goals – Journey to 2030. Available at https://www.eunwto.org/doi/book/10.18111/9789284419401, (accessed November 2023).

Vargas-Sánchez, A. (2016). Exploring the concept of smart tourist destination. *Enlightening Tourism. A Pathmaking Journal*, *6*(2), 178-196.

Winkowska, J., Szpilko, D., Pejic, S. 2019. Smart city concept in the light of the literature review. Engineering Management in Production and Services, 11(2), 70-86.

Xu, Z., Chau, S. N., Chen, X., Zhang, J., Li, Y., Dietz, T., & Liu, J. (2020). Assessing progress towards sustainable development over space and time. *Nature*, *577*(7788), 74-78.

كيف يمكن الاستفادة من المدن الذكية لإنشاء وجهات سياحية مستدامة: حالة مدينة العلمين الجديدة

الملخص:

تعمل المدن الذكية على دمج الاستدامة في جدول أعمالها مع دمج المكونات التكنولوجية والمعلوماتية كمزايا تكميلية. الغرض من الدراسة هو إثراء فهم كيفية تأثير المدينة الذكية على تنميتها المستدامة كوجهة سياحية. وبالتالي تهدف هذه الدراسة إلى تحديد تأثير أبعاد المدينة الذكية على التنمية المستدامة لوجهة سياحية من وجهة نظر المقيمين. تم تحقيق هدف الدراسة الحالية باستخدام المنهج الكمي. تم التحقق من صحة الفرضيات المقترحة في هذه الدراسة من خلال استخدام نمذجة المعادلات الهيكلية (SEM) بمساعدة المربعات الصغرى الجزئية (PLS). نتجت النتائج من البيانات التي تم جمعها بمساعدة استبيان عبر الإنترنت تم توزيعه على 256 من سكان مدينة العلمين الجديدة، والتي يتم تطويرها كمدينة ذكية من قبل الحكومة المصرية. وتوصلت الدراسة إلى أن الأبعاد الخمسة (الحكومة الذكية، والأشخاص الأذكياء، والتنقل الذكي، والاقتصاد الذكي، والبيئة الذكية) تعد منبئات مهمة للتنمية المستدامة لمدينة العلمين الجديدة. وفي النهاية، اقترحت الدراسة عدة تطبيقات لتوجيه صناع القرار والمخططين الحضريين وأصحاب المصلحة في تعزيز التنمية المستدامة للعلمين الجديدة كوجهة سياحية ذكية.

الكلمات المفتاحية: المدينة الذكية، المقصد السياحي الذكي، المقصد السياحي المستدام، مدينة العلمين الجديدة.