



IMPROVING THE COMPETITIVENESS OF URBAN TOURISM DESTINATIONS THROUGH THE SMART CITIES CONCEPT

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Abstract:

Urban areas are the heart of tourist movements in the world nowadays. Urban tourism contributes to the development of urban areas. Urban centres are the most significant users of resources and energy in rural areas and producers of waste and all forms of pollution. Since cities are complex systems, the concept of smart cities was developed to contribute to the infrastructural arrangement of the city, a cleaner, more sustainable environment, and thus a better quality of life for citizens. The research aims to show how important it is to apply the concept of smart cities to improve the competitiveness of urban tourist destinations. The study was conducted with respect to Copenhagen. A case study methodology reveals influential factors that make urban tourism based on smart city concepts competitive. The research contributes to improving urban tourism competitiveness and initiating smart city projects. Smart and sustainable city projects are strongly recommended.

Keywords:

sustainable urban development, tourism attractiveness, smart city project, Copenhagen.

INTRODUCTION

As one of the oldest and most significant civilizational phenomena in the evolution of human society, the city has always attracted people to live, work, visit and use its contents. The development of cities throughout history, increase in mobility, and change in lifestyle of citizens over the last few decades and global directions of sustainable tourism development have contributed to urban centres becoming attractive tourist destinations. As a form of tourism that contributes to urban areas' development, urban tourism turned into sustainable urban tourism as a necessity in compliance with global sustainable development objectives. City policymakers face water use, energy efficiency, waste management, and mobility challenges due to accelerated urbanization, dilapidated infrastructure, rapid population growth, and climate change. Moreover, they are faced with the possibility of significant tourism revenues, mainly if they have supported the strengthening of this sector over a long period. The New Urban Agenda, a roadmap for the construction of cities adopted by world leaders, is a global standard for sustainable urban development. With technical and financial support from international partners, national governments and local authorities implement the Agenda.

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In urban areas, city officials identify the objective of sustainable development. The city governments that implement the smart city concept define the smart city strategy involving the community in the development phase to attract funds, develop management policies, implement smart city concept-based activities, and evaluate benefits from the investment. The Smart Cities Strategy is a platform that connects the public and private sectors, academics, residents, and stakeholders necessary for sustainable urban development and guides future investments. By drawing up the project plan, the smart city strategies become operational. The smart cities concept allows city managers to directly collaborate with the residents and the urban planning office and be completely aware of what is happening in the city, its evolution, and possibilities of improving the lifestyle and preparing urban centres to meet sustainable development aims.

Connecting smart city development and technologies contributes to mutually fertilizing. The most significant technological disruption is the emergence of digital commerce. Modern consumers, as well as consumers in tourism as a noticeable and growing sector that includes both economic and non-economic activities, expect that they can manage their lives through a mobile device. As for the impacts of the most significant disruption driven by technology, the first changes were implemented in the banking sector, payments, utilities, and education. Modern technological achievements in the transport field have contributed to shifting the smart city projects from a “top-down” to a “bottom-up” approach, which does not focus on policy and resource planning support of the competent authority. In addition, the convergence of the approaches mentioned above, both vertically and horizontally, brings new value to residents and policymakers. Innovations in tourism are caused to the greatest extent by technological innovations. Still, they are also the result of the need to innovate business practices in improving relations between people and businesses, as well as technology and ecology. Orientation towards tourists and the ability to adapt an urban tourist destination according to the needs and requirements of tourists and sustainable urban development are the main prerequisites for the competitive management of cities as tourist destinations.

Culture, architecture, gastronomy, infrastructure, landscape, events, shopping, but of the same importance, the availability of destinations from other countries, public transport services, safety, pollution, accommodation offers, information, tourism labelling, hospitality, and prices are some of the influential features that attract people to the destination. The smart cities concept supports the development of various vital areas for sustainable urban development, primarily focusing on climate and energy issues, constructions and settlements, logistics, infrastructure, business, population, policy, administration, and city management. The smart cities concept is being implemented through projects around the world. Regarding Copenhagen, research shows which smart city factors improve the competitiveness of urban centres by applying such projects. The research aims to apply the concept of smart cities to enhance the competitiveness of urban tourist destinations.

The paper is divided into four sections. The *Literature review* section analyses the scientific and professional materials related to solutions for sustainable urban development. In addition, this section explains sustainable urban tourism challenges, the smart cities concept from project to practice, urban tourism destination competitiveness attributes and factors, and a comparative overview of the application of the concept and development of urban tourism in Copenhagen. A *Methodology* section involves the application of a case study method, observing a social unit (city), and identifying factors influencing the research objective. The Results section includes findings from the content analysis based on the case. The *Discussions* and *Conclusions* sections summarize the findings; suggest recommendations and directions for further research.

LITERATURE REVIEW

Solutions for sustainable cities

Sustainable cities have become of interest to the public, academic, and business sectors. Based on transferring knowledge and experiences on sustainable urban development, the public sector focuses on policymaking and planning, academia on research programs, scientific papers, and special education, and the private sector on urban infrastructure (Höjer & Wangel, 2015). Currently, half of the global population lives in urban centres. According to predictions, about 1.4 times more people will live in urban areas by 2030, of which 90% of urban growth will live in Asia and Africa (United Nations (UN), 2022). Solutions for sustainable cities are divided



into the following groups: mobility, water, energy, and strategy. With continual readiness of all urban area development actors for new ideas, they are building partnerships and initiating projects to exchange knowledge and experience (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012). To achieve sustainability in line with the global sustainable development aims, cities follow the New Urban Agenda, a global standard on sustainable urban development consisting of planning, managing, and living aspects (Ezaki, 2021). The New Urban Agenda manifests well-planned and well-managed urbanization and represents a powerful tool for the sustainable development of countries (Habitat III, 2016). The New Urban Agenda includes correlations between urban planning and socio-economic development, contributing to building synergy with the 2030 Agenda Goal 11 on sustainable cities and communities (Habitat III, 2016).

Sustainable urban tourism challenges

Tourism is a powerful economic driver of urban development that tremendously impacts residents' lives. The urban tourism challenges are related to the negative tourism impacts such as cruise ships, the temporary ban on new hotel construction, and short-term rental agencies, all contributing to overcrowding and uncontrolled growth of tourist destinations. (Ezaki, 2021). With the Covid-19 pandemic, urban tourist destinations, rather than impacting tourism, face a lack of tourism challenges and struggle to survive (Breda University of Applied Sciences, 2021).

Attributes and competitive factors of urban tourist destination

The Ritchie & Crouch's Conceptual Model of Destination Competitiveness is a well-known achievement in tourism literature and research studies based on both Smith's comparative advantage and Porter's competitive advantage theories but adapted to the characteristics of tourist destinations' competition (Goffi, 2013). This model identifies 36 competitiveness attributes classified into five key factors: „qualifying and amplifying determinants”, “destination policy, planning and development”, “destination management”, “core resources and attractors”, and “supporting factors and resources” (Goffi, 2013). In contrast the “core resources and attractors” are key factors related to tourism attractiveness, and other key factors contribute to success and profitability (Goffi, 2013).

Smart Cities concept - from project to practice

“A smart, sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, the efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations concerning economic, social, environmental, as well as cultural aspects” (International Telecommunication Union, 2016, p. 2). The smart cities concept addresses urban challenges by utilizing advanced technologies in data collection and Internet-based communication (Rahman, 2022). Smart city projects are based on using smart equipment to monitor the urban environment in real-time, gather information for decision-making, and facilitate services to improve the urban lifestyle (Rahman, 2022). Nowadays, the smart cities concept is advanced by the business sector, especially ICT and construction companies (Höjer & Wangel, 2015).

Copenhagen – a case study of tourism attractiveness as a smart city concept

According to the methodology presented in the report entitled *Smart cities – Ranking of European medium-sized cities*, a smart city is a city that performs well in the following six key fields of urban development: “smart economy”, “smart people”, “smart governance”, “smart mobility”, “smart environment”, and “smart living” (Giffinger *et al.*, 2007, p. 12). Competing with 100 cities, Copenhagen is one of the most advanced smart cities in Europe, performing above average in all six key fields (Gatski & Galgoczi, 2016). It is the most advanced in “smart people”, and least advanced in “smart living”, with the maximum result in the subfields of “innovative spirit”, “city image”, “lifelong learning”, and least advanced in “productivity”, “individual security”, “housing quality”, “education facilities” (Gatski & Galgoczi, 2016).



As per the latest edition of the Smart City Survey, based on a three-tiered model that describes digital banking, digital business, and digital life as functional levels of smart city projects, Copenhagen perfectly applies modern technologies toward public services:

- The project is fully operational and integrated into the lives of people,
- The project focuses on banking (commerce or life) at the level of digital life,
- Smart city all-inclusive laboratory launched in 2014, involving public and private enterprises,
- Concerning functional aspects, the project supports or resolves the following fields: data, mobility, sustainability, and wealth,
- To develop the identity system, the Danish Agency of Digitalization is developing the next generation of e-identity and public digital signatures,
- The Copenhagen Solutions Lab project focuses on the eco-system approach initiated by the Copenhagen Technical and Environmental Administration (*O-City by BPC, 2020*).

The Copenhagen Solutions Lab concept is based on collecting public and private data and using the innovation hub as a development-based tool for encouraging collaboration between citizens and businesses to meet challenges related to the growing urban population (testing solutions for smart parking, waste management, air quality, and care of urban nature) and attract world-leading companies to invest in smart cities projects (*O-City by BPC, 2020*).

In Copenhagen solutions for a sustainable smart city in the field of mobility, water, energy, and strategy contributed to the following: reducing CO₂ emissions; expanding the economy; improving the lifestyle; building up a bicycle infrastructure; cleaning the water in port to improve the environment; making benefits to businesses, tourism, and the real estate market; integrating public transport system to reduce traffic congestion and save city's budget making the city efficient and competitive; the development of "demand-driven" by residents and businesses city's sustainable solutions; as well as taking political decisions and strategies to address the mentioned demands (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012).

The best example of enhancing the quality of tourist destination offerings is cycling in Copenhagen and encouraging tourists to cycle around the city (Ezaki, 2021). Reorganizing port areas from industry to residential ones brings contributions to Copenhagen through the increasing quality of life, tourism and value of the real estate, revitalization of local businesses, and water quality improvement in the port (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012). Strategic urban planning in Copenhagen is crucial in improving citizens' and tourists' quality of life (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012).

The 2020 strategy "Localhood" adopted in 2017, strengthened by the sustainability strategy "Tourism for Good" a few years later, pursue a vision that sees tourism as a tool for achieving a sustainable goal of positively contributing to society (Breda University of Applied Sciences, 2021). The official tourism organization adopted a strategy that focuses on measuring tourism's positive and negative impacts for making sustainable choices by Copenhagen and the tourism industry through a dialogue with residents, urban planners, and architects (Breda University of Applied Sciences, 2021).

METHODOLOGY

As to assess the importance of applying the smart cities concept to improving the competitiveness of urban tourist destinations, two hypotheses were formulated:

- The smart cities concept contributes to the sustainable development of cities as competitive urban tourist destinations through the efficient application of modern techniques and technologies.
- The smart cities concept stimulates urban tourism development.

The research methodology includes applying a case analysis approach, observation of a social unit – the smart city, and the interdependence of factors influencing the smart city concept and the factors affecting the competitiveness and sustainability of tourist destinations for research purposes. The research was conducted using a content analysis method based on the Copenhagen case. For this research, the authors used the Smart cities –



Ranking of European Medium-Sized Cities Methodology (Giffinger *et al.*, 2007), as a part of the final report of the research project and the Ritchie & Crouch's Conceptual Model of Destination Competitiveness (Goffi, 2013), as a widely accepted achievement in tourism literature and research studies. The research analyzed the interdependence of factors of the smart cities concept and the aspects of tourist destination competitiveness and sustainability in the case of Copenhagen, considering the general consideration of the indicators and the fact that they further describe the factors. Results were achieved, and recommendations were proposed.

RESULTS

By comparing the factors of the Smart Cities – Ranking of European medium-sized cities methodology (Giffinger *et al.*, 2007) and the factors of the Ritchie & Crouch's Conceptual Model of Destination Competitiveness (Goffi, 2013) concerning Copenhagen (Gatski & Galgoczi, 2016) (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012), (O-City by BPC, 2020) (Ezaki, 2021), the results are presented in Table 1. An overview of the interdependence of factors that make tourism based on the smart cities concept competitive, the factors of the smart city concept are grouped by characteristics due to clarity. The interdependence of the factors is explained by considering the indicators that describe the factors.

The “smart economy” factors of the smart city concept that influence five factors of tourist destination competitiveness and sustainability (Table 1) contribute to a convenient business environment through the improvement of entrepreneurship, the stimulation of innovation, productivity growth, the creation of an economic image, the flexibility of the labour market, international cooperation, and commitment to change. The “smart people” factors of the smart city concept that influence three factors of tourist destination competitiveness and sustainability (Table 1) contribute to a convenient social environment through improving the qualification level and lifelong learning, supporting tolerance and transparency in society, gender equality, respect for minority groups, openness, and participation in public life. The “smart governance” factors of the smart city concept that influence three factors of tourist destination competitiveness and sustainability (Table 1) contribute to a convenient development environment through supporting the active participation decision-making, improving public and social services, promoting transparent governance, and contributing to the formulation of policy strategy. The “smart mobility” factors of the smart city concept that influence four factors of tourist destination competitiveness and sustainability (Table 1) contribute to a convenient spatial environment through better overall location accessibility, existing ICT infrastructure, and design modern and safe transport systems. The “smart environment” factors of the smart city concept that influence two factors of tourist destination competitiveness and sustainability (Table 1) contribute to a convenient natural environment through the attractiveness of natural resources, pollution, environmental protection, and sustainable resource management. The “smart living” factors of the smart city concept that influence five factors of tourist destination competitiveness and sustainability (Table 1), contribute to a convenient life environment through maintaining cultural and education facilities, improving health conditions, individual safety, housing conditions, tourism attractiveness and social cohesion.

Out of 30 intersections of factors, interdependence is realized in 22 cases, indicating a share of 73.33% that the smart city concept influences the tourism competitiveness of the urban area. The factors of “smart economy” and “smart living” influence tourist destinations' competitiveness, and sustainability. Since the core resources and attractors are key reasons that potential tourists choose a tourist destination, three factors of smart city related to economy, mobility, and living directly influence the tourism attractiveness of the urban destination. Previously stated indicates that the application of smart city concept has a 50% impact on urban competitiveness and a 79.17% impact on the success and profitability of the urban area. The research confirmed both hypotheses.



Table 1. The overview of the interdependent factors that make smart city concept tourism competitive

Characteristics of smart city concept	Factors of tourist destination competitiveness and sustainability				
	<i>Qualifying and amplifying determinants^b</i>	<i>Destination policy, planning and development^b</i>	<i>Destination management^b</i>	<i>Core resources and attractors^b</i>	<i>Supporting factors and resources^b</i>
SMART ECONOMY ^a	x	x	x	x	x
SMART PEOPLE ^a	-	x	x	-	x
SMART GOVERNANCE ^a	-	x	x	-	x
SMART MOBILITY ^a	-	x	x	x	x
SMART ENVIRONMENT ^a	-	x	x	-	-
SMART LIVING ^a	x	x	x	x	x

Source: Authors' analysis

a. Characteristic of smart city presented in the Smart Cities – Ranking of European Medium-Sized Cities Methodology (Giffinger, *et al.*, 2007, p. 12)

b. Factor of tourist destination competitiveness and sustainability of the Ritchie & Crouch's Conceptual Model of Destination Competitiveness (Goffi, 2013, p. 25)

CONCLUSION AND DISCUSSION

The smart city concept and the competitiveness of urban tourist destinations are two contemporary topics that are not interrelated in the scientific and research literature but are heavily studied independently. This research poses a pioneering attempt to intersect the mentioned topics. The research was conducted by analysing the available literature in the mentioned areas using knowledge and experience in economic development programmes and creativity. The authors focused on a general approach taking into consideration the factors of selected models, the Smart cities – Ranking of European medium-sized cities methodology (Giffinger *et al.*, 2007), and the Ritchie & Crouch's Conceptual Model of Destination Competitiveness (Goffi, 2013), in the mentioned topics, considering the selected models as a reference due to numerous citations in the literature related to tourism and the smart city concept. The interdependence of factors discussed is based on analysing indicators that explain the factors more deeply. The analysis of interdependent factors of selected models on the example of one of the ten best smart cities was the authors' innovative idea to point out the importance of applying the smart city approach to improving the competitiveness of urban tourist destinations in the limited research opportunities. The authors point out that the results of this research are the outcome of content analysis and the intersection of two world-famous models in the case of Copenhagen (Gatski & Galgoczi, 2016) (Copenhagen Cleantech Cluster (CCC) & State of Green, 2012) (O-City by BPC, 2020) (Ezaki, 2021). Still, they should not be generalized but used for continued research and the creation of synergy between smart city projects and the competitiveness model of urban tourist destinations. Future research should look at the interdependence of the indicators of the used models and expand to other models of the competitiveness of tourist destinations and models of smart city approaches.

Regardless of its size, all urban areas are highly recommended to learn about and integrate the smart city concept in the strategy and urban planning, as well as initiate projects in the mobility, energy, and water field. For the implementation of smart city projects, access to available development funds through public-private project partnerships is highly recommended. For developing sustainable smart city solutions, the organization of study visits to smart cities around the world is strongly advised.



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