ENTENDIENDO LA CIUDAD TURÍSTICA INTELIGENTE: EL CASO DE LISBOA. UNDERSTANDING THE SMART TOURISM CITY: THE CASE OF LISBON. ENTENDENDO A CIDADE TURÍSTICA INTELIGENTE: O CASO DE LISBOA.

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RESUMEN

Esta investigación tiene como objetivo analizar Lisboa como una ciudad turística inteligente basada en la visión de expertos científicos. Así, considerando el estudio de caso como método de investigación empírico, se utilizaron los métodos de análisis bibliográfico, análisis documental y entrevista semiestructurada en profundidad. Por lo tanto, a partir de la triangulación de estos métodos, fue posible establecer los componentes de los destinos turísticos inteligentes, que pueden ser de interés para la academia y los tomadores de decisiones de los destinos turísticos. Además, a través del análisis de contenido de las entrevistas, se entiende que Lisboa es un destino turístico urbano con una amplia oferta turística, que se basa fundamentalmente en su patrimonio histórico-cultural, y que cuenta con iniciativas innovadoras de ciudad turística inteligente. Asimismo, los resultados destacan la sólida colaboración público-privada de Lisboa en la gestión urbana y el turismo.

Palabras clave: Innovación tecnológica. Tecnologías de la información y la comunicación. Componentes de los destinos turísticos inteligentes. Ciudad turística inteligente. Análisis de contenido. Lisboa.

ABSTRACT

This research aims to analyze Lisbon as a smart tourism city based on the vision of scientific experts. Thus, considering the case study as an empirical research method, the methods of bibliographic analysis, documentary analysis, and in-depth semi-structured interviews were used. Therefore, from the triangulation of these methods, it was possible to establish the components of smart tourism destinations, which may be of interest to academia and

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decision-makers of tourist destinations. Furthermore, through the content analysis of the interviews, it is understood that Lisbon is an urban tourist destination with a wide tourist offer, which is essentially based on its historical-cultural heritage, and that it has innovative initiatives of a smart tourism city. Likewise, the results highlight Lisbon's solid public-private collaboration in urban management and tourism.

Keywords: Technological innovation. Information and communication technologies. Components of smart tourism destinations. Smart tourism city. Content Analysis. Lisbon.

RESUMO

Esta investigação visa analisar Lisboa como uma cidade turística inteligente com base na visão de especialistas científicos. Assim, considerando o estudo de caso como método de pesquisa empírica, foram utilizados os métodos de análise bibliográfica, análise documental e entrevista semiestruturada em profundidade. Portanto, a partir da triangulação desses métodos, foi possível estabelecer os componentes dos destinos turísticos inteligentes, que podem ser de interesse da academia e dos tomadores de decisão dos destinos turísticos. Além disso, através da análise de conteúdo das entrevistas, entende-se que Lisboa é um destino turístico urbano com uma ampla oferta turística, que se fundamenta no seu património histórico-cultural, e que conta com iniciativas inovadoras de uma cidade turística inteligente. Além disso, os resultados destacam a forte colaboração público-privada de Lisboa na gestão urbana e no turismo.

Palavras-chave: Inovação tecnológica. Tecnologias da informação e comunicação. Componentes de destinos turísticos inteligentes. Cidade turística inteligente. Análise de Conteúdo. Lisboa.

1. INTRODUCTION

Taking into account that in 2030 approximately 60.4% of the world's population will live in urban environments (United Nations Human Settlements Programme [UN-Habitat], 2020), in this context, the management of the urban tourist destination must be integrated and synergistic, thus facilitating the implementation of urban and tourism investment policies and programs based on the real needs of people, as well as the implementation of innovative strategies to improve the facilities, services, and infrastructures of urban and tourist areas, and create experiences and attractions that benefit both residents and tourists.

Concerning innovative strategies, specifically in the field of tourism, they would be essentially related to technological innovations, to refer to the intensive use of information and communication technologies (ICT) (Buhalis, 2020; Buhalis & Law, 2008; Hjalager, 2010). Then, ICT includes a whole range of technological tools that facilitate the management of information, functions, and processes of institutions, as well as enable interactive communication between tourism stakeholders (Buhalis, 2003) that support the

management process of tourist destinations (Ivars-Baidal et al., 2019).

In this sense, from the expansion of smart cities arises in the literature, the definition of smart tourism destinations (STD) (Boes et al., 2015; Gretzel et al., 2015a) refers to urban or rural areas that are based on cutting-edge technologies, functioning as dynamic and complex ecosystems, which include n physical and digital components (Baggio et al., 2020), so it promotes the efficiency, sustainability, and competitiveness of the tourist destination, and stimulates the maximization of resources, to generate tourist experiences of added value to tourists and increase the quality of life of residents (López de Ávila & Sánchez, 2015).

Likewise, smart tourism cities (STC) can also be understood as an STD (Lee et al., 2020) for understanding urban and tourist places, which with the support of technological innovations, seek the creation and implementation of integrated and synergistic solutions for both residents and tourists (Gretzel & Koo, 2021).

Although a relative number of publications regarding STDs is observed, in which the role of ICT is highlighted, it is still an emerging issue in the tourism literature (Gretzel & Scarpino-Johns, 2018; Gretzel et al., 2015a). In addition, there has been no conceptual consensus on the STD, given its multidisciplinary nature and complex ecosystems (Shafiee et al., 2021; Vargas-Sánchez, 2016). There is also a shortage of studies on the dimensions, factors, and indicators that would constitute these territories (Boes et al., 2015; Ivars-Baidal et al., 2021; Santos-Júnior et al., 2021; Santos-Júnior et al., 2017).

Based on the above, this article is characterized as qualitative research, which has as a case study of the city of Lisbon, Portugal, for being an internationally recognized urban tourist destination and classified as a smart city in Europe. That being the case, the following research question is presented: How do scientific experts characterize Lisbon in the context of smart tourism cities? Thus, this study aims to analyze the vision of scientific experts concerning the configuration of Lisbon as a smart tourism city.

This document is organized into five sections for better understanding, beginning with this brief introduction. In the second section, an attempt is made to make a theoretical approach to STDs and STCs, and Lisbon is then presented as a place of study and context. In the third section, the methodology is presented. The fourth section presents the research results, where it is sought to make a theoretical and empirical confrontation of the data obtained. Finally, the last section offers the study's conclusion, with the limitations of the research, and indications of future lines of research.

2. SMART TOURISM DESTINATIONS AND SMART TOURISM CITIES

From the integration of the concept of smart cities and tourism, with emphasis on the adoption of technological innovations, especially the use of ICT (Koo et al., 2016), emerged in the 2010s, the definition of STD, as an integral part of the smart tourism ecosystem, which would be an evolution of traditional tourism and electronic tourism (Gretzel et al., 2015a).

In this way, STDs refer to innovative environments based on the technological infrastructure of smart cities (Lamsfus et al., 2015), which are committed to sustainable development. They are provided with an information system to analyze and understand events in real-time, facilitating interaction between visitors and their environments, which seeks to meet not only the needs of citizens but also the needs of tourists through the improvement of the efficiency of management of resources and services, to generate value-added tourism experiences, and improve the quality of life of residents (Buhalis & Amaranggana, 2013; Gretzel et al., 2015a; López de Ávila & Sánchez, 2015).

Taking into account the development of urban tourism in smart cities, it is possible to identify that some publications use the term smart tourism "city" (STC) instead of smart tourism "destination" (Lee et al., 2020). It should be understood that the STC uses the urban infrastructure and increases the city's tourist attractions (natural and cultural), which creates value and promotes the well-being of tourists and residents (Gretzel & Koo, 2021).

To better understand, while STDs would be more geared towards serving and meeting the needs of tourists through the (co-)creation of tourism experiences, STCs would also be concerned with promoting the well-being of residents (Gretzel & Koo, 2021; Lee et al., 2020). In this way, the residents of the STC would assume an active role, in which they can enjoy the tourist attractions and contribute to the better functioning of the urban space and the quality of life.

Regarding the use of ICT as technological innovation for STDs, (Buhalis & Amaranggana, 2013; Hjalager, 2010; Navío-Marco et al., 2018), would include the information system, technological infrastructure, connectivity, and smart sensor networks, and smart solutions (Femenia-Serra & Neuhofer, 2018; Gretzel et al., 2015a; Ivars-Baidal et al., 2017), for example, mobile devices, real-time information, internet services available to end-users, cloud services, internet of things (IoT), data mining and data mining, virtual reality (VR) and augmented reality, artificial intelligence (AI), near field

communication (NFC), radio frequency identification (RFID) and mobile applications (Apps).

Regarding the dimensions that constitute the STDs referenced in the literature, they are closely related to the components of smart cities (Buhalis & Amaranggana, 2013), for example, smart people, smart living, smart governance, smart economy, smart mobility, and smart environment (Giffinger et al., 2007; Lombardi et al., 2012).

Table 1 then presents the main components of STDs or STCs, identified from institutional documents and published articles. In this way, based on the above premises, it can be mentioned that both the smart city and the STD are territories that are based on ICT as a way to facilitate the lives of people – residents or tourists – through sustainable local development (economic, social and environmental), the improvement and management of public infrastructures and the collaboration of a network of actors.

Table 1. Studies on the components of Smart Tourism Destinations.

Key dimensions of the smart tourism destinations	References
Governance; Sustainability; Accessibility; Innovation; Technology	SEGITTUR (2015)
Governance; Sustainability; Innovation; Connectivity and sensorization; Information systems; Applications	INVAT. TUR (2015)
Leadership; Entrepreneurship and innovation; Social capital; Human capital	Boes et al. (2015)
Governance; Sustainability; Innovation; Connectivity and sensorization; Information systems; Smart solutions	Ivars-Baidal et al. (2017)
Cultural heritage and creativity; Sustainability; Accessibility; Digitalization	European Commission (2019)
Entrepreneurship and innovation; Collaborative economy; Employment; Income; Quality of products/services; Costs of living; Human capital; Social capital; Health; Security; Mobility and accessibility; Social inclusion; Culture and sntertainment; Digital gap; Gentrification; Water and energy Management; Environmental management; Sustainable urban areas; Over-Tourism; Pollution; Governance; Digital security and privacy; Fake news.	Santos-Júnior et al. (2020)
Stakeholders; Structure; Process; Technology; Policies	Shafiee et al. (2021)
Governance; Sustainability; Accessibility; Innovation; Connectivity; Intelligence; Information system; Online marketing; Evolution of tourism activity	Ivars-Baidal et al. (2021)
Collaborative partnership; Sustainability; Accessibility; Attractions; Preparing for digitalization	Chung et al. (2021)

Source: Own elaboration.

3. LISBON AS A STUDY PLACE AND CONTEXT

Lisbon is Portugal's capital and largest city, comprising a territorial area of approximately 100 km2 and an approximate population of 545.923 inhabitants in 2021, which corresponds to 5% of the weight of the city in the country. In addition, the city of Lisbon constitutes the Metropolitan Area of Lisbon (AML), which is formed by 18 municipalities that are divided by the two banks of the Tejo River, possessing an approximate area of 3.015 km2, and a population of 2.871.133 inhabitants in 2021 (Instituto Nacional de Estatística [INE], 2021).

According to data from the Lisbon City Council – "Câmara Municipal de Lisboa (CML)", the AML is home to the country's economic decision-making centers, which represent around 36% of the national GDP and employ approximately 1.437 thousand people (29% of the country's employment) (CML, 2020).

Thus, tourism represents a sector of great economic relevance for the AML and the city of Lisbon, presenting an upward annual growth until 2019, before the start of the COVID-19 pandemic. According to data from the INE (2019), in 2018, the number of guests in the hotel ventures of the AML totaled 7.542.389, corresponding to a weight of 30% of the number of guests in Portugal. On the other hand, the city of Lisbon received about 5.510.934 guests, which corresponds to 73.06% of the number of guests of the AML.

From the perspective of the STC, Lisbon can be considered an internationally recognized urban tourist destination with many smart city initiatives, which gives it a good position in the international rankings of smart cities.

According to the IMD Smart City Index (2019), in 2019, Lisbon occupied the 76th position out of a total of 102 smart cities, standing out in the dimensions of social cohesion, international positioning, and economy, followed by the dimensions of environment, urban planning, and technology. On the other hand, in the IESE Cities in Motion Index (2019), Lisbon ranked 44th of a total of 174 smart cities, presenting a better score in the dimensions of activities (For example, cultural activities and green spaces), opportunities – work and education (For example, the creation of new businesses, IT skills), and health and safety.

Concerning the main entities of tourism management in Lisbon, the following stand out: i) National: "Turismo de Portugal"; Regional: "Entidade Regional de Turismo da Região de Lisboa (ERT-RL)"; Municipal: "Câmara Municipal de Lisboa (CML)". On the other hand, the "Associação Turismo de Lisboa (ATL)" functions as a Destination Marketing

Organization (DMO) and is known as a key player in Lisbon tourism, which is responsible for the promotion of tourism.

4. METHODOLOGY

4.1. Data Collection

To carry out this study, the case study method has been used, which according to Yin (2015, p. 17), refers to "empirical research that investigates a contemporary phenomenon (the "case") in-depth and its real-world context, especially when the boundaries between the phenomenon and the context may not be evident."

Therefore, taking into account the few case studies regarding smart solutions, smart city initiatives, and STDs (Ivars-Baidal et al., 2021), the city of Lisbon has been chosen as a case study. This method has allowed a broad and detailed knowledge of Lisbon from the perspective of the STC.

Thus, for greater validity, data triangulation was carried out for a correct interpretation and more elaborate explanation of the case (Stake, 2021) through the techniques: (i) bibliographic research, (ii) documentary research, and (iii) semi-structured interviews in depth with scientific experts.

To explore the subject, first, bibliographic research was carried out through the selection and analysis of theoretical-conceptual studies and relevant case studies available on the Scopus and Google Scholar platforms, as well as the analysis of books and institutional manuals, considering the issues: smart cities, STD, and STC.

Next, the documentary research included the analysis of reference documents from Lisbon and Portugal, which are available on the official websites of government institutions at the national, regional, and local levels. Essentially, the selection of these documents considered the aspects of urban development, tourism development, the impact of new technologies, sustainability, and governance of Lisbon towards configuring an STC.

Regarding the semi-structured interviews with the scientific experts, a purposeful and snowball sampling was defined with professors and researchers in the field of tourism, territorial planning, and geographic information system from three recognized Portuguese institutions: University of Lisbon (ULISBOA), Estoril Higher School of Hospitality and Tourism (ESHTE) and European University (UE).

Due to the redundancy or repetition in the interviewees' answers, theoretical saturation determined the sampling, which was limited to 9 face-to-face interviews in 2019 (See Table 2).

Thus, it was decided not to include new participants in interviews. It is worth noting that the formal consent of the participants was obtained for recording the interviews, which

were carried out in the Portuguese and Spanish languages, and with the use of the Olympus VN 731PC voice recorder.

Table 2. Interviews with scientific experts.

Code	Gender	Degree	Position	Institution	Interview date	Interview Duration
Ex1	Female	PhD in Geography-Spatial Planning	Professor/ Researcher	ULISBOA	28-03-2019	0:22:29
Ex2	Male	PhD in Geography-Regional and Urban Planning	Professor/ Researcher	ULISBOA	03-04-2019	0:45:17
Ex3	Male	PhD in Geography-Regional and Urban Planning	Professor/ Researcher	ESHTE	10-04-2019	1:06:26
Ex4	Male	PhD in Human Geography	Professor/ Researcher	ULISBOA	12-04-2019	0:36:46
Ex5	Male	PhD in Geography-Geographic Information Science	Professor/ Researcher	ULISBOA	26-04-2019	0:45:02
Ex6	Male	PhD in Geography-Regional Planning	Professor/ Researcher	ESHTE	30-04-2019	0:52:04
Ex7	Male	PhD candidate at Geography-Geographic Information Science	Researcher	ULISBOA	16-05-2019	0:33:23
Ex8	Female	PhD in Tourism	Professor/ Researcher	EU	09-08-2019	0:59:22
Ex9	Male	Consultant in Innovation and Entrepreneurship	Professor/ Researcher	EU	12-08-2019	0:55:06

Source: Own elaboration.

Regarding the conduction of the in-depth interviews through the deductive approach, a semi-structured guide is essentially supported by the components of the STDs of SEGITTUR (2015) and INVAT.TUR (2015) models were used. Therefore, fourteen open questions have been considered, distributed in three parts: conceptual aspect of the STD – 8 questions; Lisbon as STD – 5 issues; Lisbon city – 1 question.

4.2. Data Analysis

To analyze the data, first, the audio recordings and notes of the interviews were transcribed using express Scribe software and Word 16.61 for Mac. The data was then processed using NVIVO 11 for Mac and Excel 16.51 for Mac software and analyzed using the content analysis method.

Content analysis is "a set of techniques for analyzing communications using systematic and objective procedures for describing the content of messages" (Bardin, 1996, p. 29). There are some publications on the subject of STDs that have used this method, for example, in review studies (Baggio et al., 2020; Borges-Tiago et al., 2022; Mehraliyev et al., 2020; Shafiee et al., 2021; Ye et al., 2020) and case studies (Boes et al., 2016; De Morais Lima et al., 2021; Santos-Júnior et al., 2017; Sigalat-Signes et al., 2020; Ye et al., 2021).

Thus, from the content analysis of the interviews and triangulation with the data obtained from the documentary

research and studies on smart cities (Giffinger et al., 2007; Neirotti et al., 2014) and STDs (Boes et al., 2015; Ivars-Baidal et al., 2017; Santos-Júnior et al., 2020; SEGITTUR, 2015), through the deductive and inductive approach, it was possible to describe the vision of the interviewees regarding the definition of the STD and establish seven dimensions or components of the STC: governance and leadership, living, mobility and accessibility, technology, innovation and entrepreneurship, people, and environmental sustainability. The results allowed us to contextualize Lisbon as a case study and identify and analyze the city's most relevant strengths and weaknesses in the context of STDs based on the vision of scientific experts.

5. LISBON AS A SMART TOURISM CITY

Based on the content analysis, it can be reflected that Lisbon has some smart city initiatives and STDs, but it is still in the initial stage of development. Among the main strategies adopted that drive Lisbon towards configuring an STC, public-private participation in tourism governance, the variety of cultural and tourist attractions, innovations in the public transport system, and social capital stand out.

Figura nº 1. Dimensions of Lisbon's smart tourism city
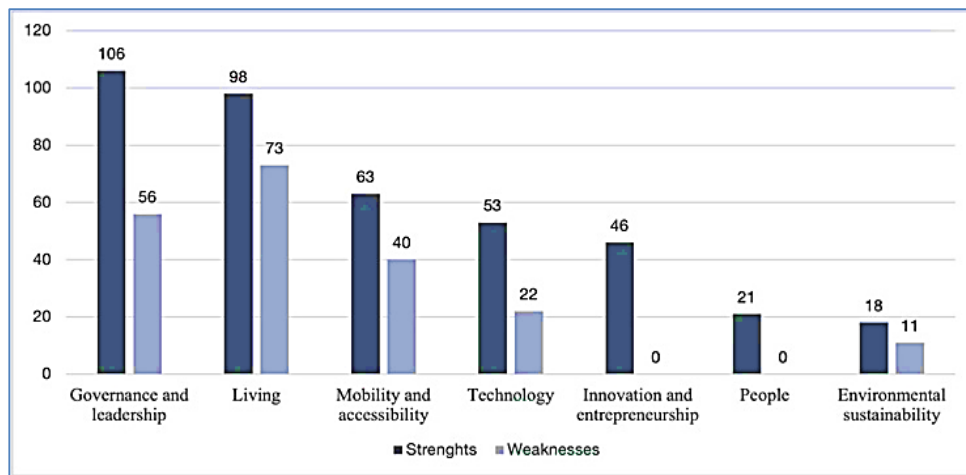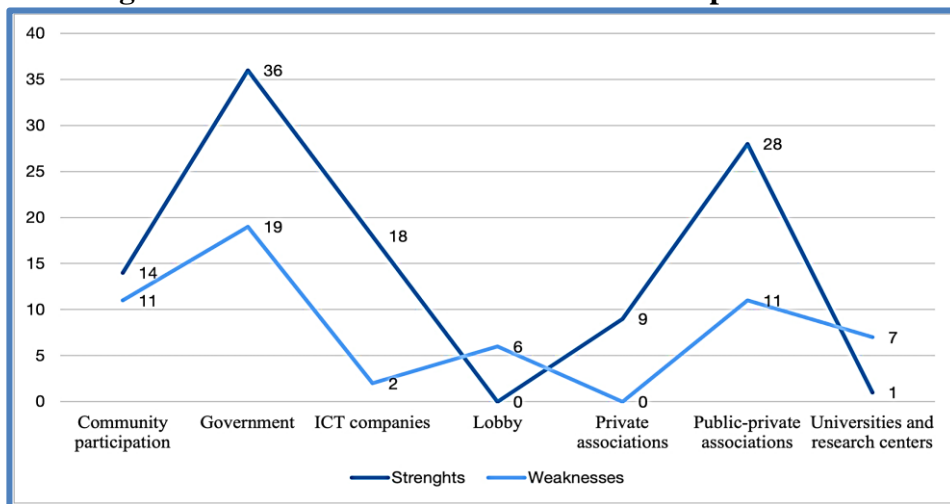

Source: Own elaboration.

Therefore, a total of 607 inferences from the interviews were classified, with 405 (66.72%) presenting Lisbon's good practices (strengths) as an STC and 202 (33.28%) referring to its weaknesses (weaknesses). Figure 1 shows the total positive and negative inferences distributed by each STC dimension: governance and leadership, living, mobility and accessibility, technology, innovation and entrepreneurship, people, and environmental sustainability.

Next, the dimensions and their respective sub-dimensions obtained through the content analysis of interviews with scientific specialists are presented and analyzed, considering the most relevant inferences.

Governance and Leadership Dimension. Relation to the governance and leadership dimension, which can be framed as a soft element of the STD (Boes et al., 2015), plays a crucial role in ensuring transparency, openness, accountability, collaboration, innovation, and efficiency, concerning all stakeholders – government, business, non-governmental organizations, universities, and community (Santos-Júnior et al., 2017).

Thus, governance and leadership have been the dimension that received the most positive inferences, as can be seen in Fig. 1. Considering the categorization of the responses, seven subdimensions were established (See Fig. 2): i) community participation; ii) government – CML, ERT-RL, National Government, and Tourism of Portugal; (iii) ICT companies; (iv) lobby; (v) private associations – local associations and national associations; (vi) public-private partnerships – ATL and Lisboa E-Nova; and (vii) universities and research centers.

Figura nº 2. Governance and leadership dimension

Source: Own elaboration.

As for the sub-dimension participation of the community, it is considered a crucial element in the intelligence and sustainability of the tourist destination (Perles Ribes & Ivars Baidal, 2018). In this way, it was elucidated that residents have relative participation in urban and tourism management: "That there is a certain awareness that we are more capable of collaborating, therefore, that we are not amorphous, that we are not passive, and that therefore our voice is always a contribution." (Ex8). However, it is thought that there might

be more incentives from the local government to discuss urban development and tourism.

Concerning the government sub-dimension, the CML plans and coordinates programs and projects that contribute to the configuration of Lisbon in an STC. However, problems can be identified regarding the implementation of specific policies related to smart tourism, as well as reactive planning: "We are not seeing the CML adopt policies or the government in which the use of technology is a lever to create a destination, for Lisbon as a smart tourism destination." (Ex2).

Although the governance model of the Lisbon region is based on collaborative leadership, (Comissão de Coordenação e Desenvolvimento Regional de Lisboa e Vale do Tejo [CCDRLVT], 2018, p. 23) the difficulty of collapsing among public agents in Lisbon seems evident: "...the Lisbon City Council is a tough monster to manage. Internal departments, for the most part, do not interact with each other." (Ex3).

Something very positive mentioned by the respondents would be the existence of public-private partnerships, as is the case of the ATL and Lisboa E-Nova agency, in which the CML, in collaboration with other agencies and economic agents, contributes to the intelligence and sustainability of the city of Lisbon, through public-private initiatives. "The Associação Turismo de Lisboa is a key actor, isn't it?... Because it is the model that associates the municipality with the economic agents of tourism and they can promote these processes decisively, it is not?" (Ex9).

Regarding private associations, it has been commented on the existence of relevant national associations related to the tourism sector such as "Associação Portuguesa das Agências de Viagens e Turismo (APAVT)"; "Associação Portuguesa de Empresas de Congressos, Animação Turística e Eventos (APECATE) ", "Associação da Hotelaria, Restauração e Similares de Portugal (AHRESP)". In addition, there is also the strong participation of local business associations. On the other hand, it alludes to the existence of large ICT companies, which occupy a crucial role in the process of digital transformation of Lisbon as an STC, for example, Uber, Amazon, Google, and NOS. As for the participation of universities and research centers, it is believed that there should be more effective participation in the planning and management of the city of Lisbon toward creating an STC.

Thus, he also cited the existence of groups that interfere in managing the budget for tourism, which could be understood as a "lobby". In this sense, a *modus operand* is perceived that is contrary to the governance process: "... many times the person who makes the most noise is the one who talks the most, the one who shouts the most, sometimes the one who is heard the most." (Ex2).

Living Dimension. As for the life dimension, it would be associated with the smart living dimension of the smart city model of Giffinger et al. (2007), in which ICTs could facilitate the support of urban services and increase the well-being of visitors and residents of the STD (Santos-Júnior et al., 2020).

Thus, it was possible to establish six subdimensions (See Fig. 3): culture (cultural heritage and requalification of spaces), gentrification, overtourism, quality of life, tourism (tourist activity, tourist attractions, and experiential city), and urban services. Among the aspects that have received the most positive inferences are the tourism (43) and culture (40) subdimensions. On the other hand, the elements that have received the most negative evaluation have been the subdimensions of overtourism (21), urban services (19), and gentrification (12).

Figura nº 3. Living dimension
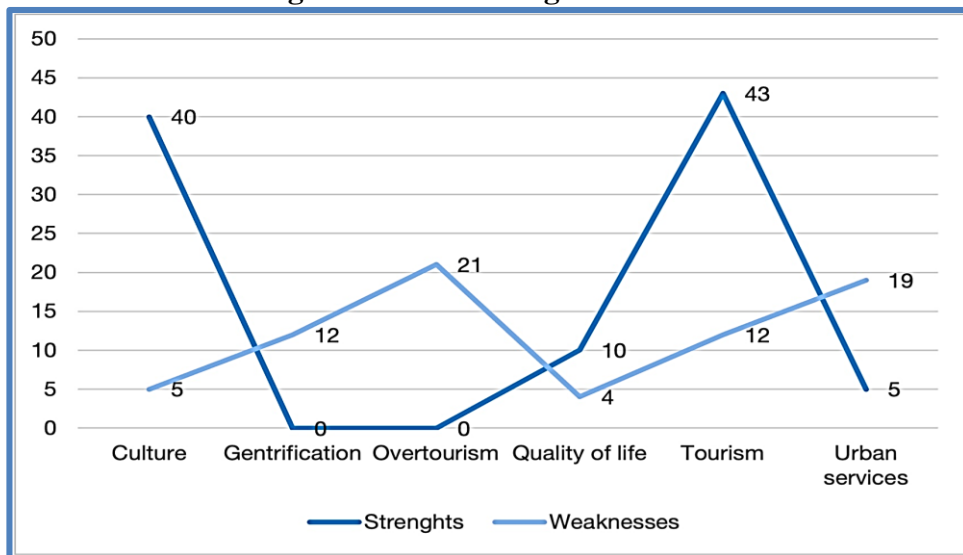
Source: Own elaboration.

About tourism and culture' subdimensions refer to the tourist and cultural offer of the tourist destination of Lisbon, which through the use of new technologies, can generate significant tourist experiences for visitors (Boes et al., 2016), as contextualized: "… having a destination that has the intelligence and the capacity to offer very diverse experiences is, for each one, and for all those who can attend, right?" (Ex6).

Most respondents consider Lisbon's excellent tourist offer, essentially based on its cultural heritage and identity, which corroborates a value-added tourist experience. In this sense, the city of Lisbon has been considered for the "European Best Destinations" award in 2010 and 2018, being "distinguished within the scope of City Breaks and as a Cultural Destination" (CML, 2020)

Another aspect identified in the narrative of the experts is that there is an investment in the requalification of urban and tourist spaces, as is the case of the riverbank (CCDRLVT, 2018, 2020) "... And the rehabilitation of the riverside has also attracted many more tourists." (Ex5). This way, it is understood that this revitalization of abandoned spaces can pulverize the tourist offer for other areas.

He also elucidated the government's interest in the development of tourism from an economic perspective in recent years. However, attention is needed to the social aspect: "So, where do I want to go, if I have a municipality that assumes that it wants to be a municipality of economic activities and does not want to have people, fine, but make it explicit." (Ex1).

In addition, from the contextualized negative aspects, the issue of overtourism and gentrification would be other challenges of the STC, which affect the well-being of tourists and the local population (Ivars-Baidal, Hernández, et al., 2019; Lee et al., 2020). About overtourism, it is understood as the overcrowding of public and private spaces in the city (for example, shopping centers, bars, restaurants, theaters, museums, parks, residential buildings, etc.) on account of the intense tourist activity (Santos-Júnior et al., 2020), which can be driven by business conducted on sharing economy digital platforms (Ioannides et al., 2019; Ivars-Baidal, Hernández, et al., 2019; Perles Ribes et al., 2018).

On the other hand, gentrification is understood as the displacement and reduction of residents and local commerce in some regions of the city, mainly in the historical centers, depending on the intensity of tourist activity, which can also be stimulated by the use of ICT (Ioannides et al., 2019; Santos-Júnior et al., 2020). Therefore, it was illustrated that: "The biggest challenge is trying to redirect the tourist flow so that there is no saturation. And the tourist, I think, can enjoy this destination and these tourist services." (Ex7). It has also been commented that cruise tourism would also be another issue that causes a tremendous social and environmental impact in the city.

Also, on account of the boom in tourism, Lisbon is perceived as an increase in the price of housing and the displacement of residents to peripheral areas (Ioannides et al., 2019; Mendes, 2017; Mermet, 2017; Wachsmuth & Weisler, 2018) In that sense, the tourist gentrification of the city of Lisbon shows "how the production of space in general, and (re)urbanization in particular, has become an important business in the capitalist system, being one of the main ways of absorbing surpluses" (Mendes, 2017, p. 504)

Regarding urban services and quality of life, it is inferred that Lisbon has a set of facilities, for example: "... offer of security, it has a good level of quality of life, it has

sun, a nice city to welcome, it has good gastronomy, everything is close." (Ex2). However, it highlighted the importance of improving citizens' services (housing management, accessibility, security) and investing in technology.

Mobility and Accessibility Dimension. Concerning mobility and accessibility, it involves the use of technologies to improve public transport, airports, roads, and traffic control (Appio et al., 2019), as well as the implementation of sustainable, innovative, and safe transport systems (Giffinger et al., 2007; Neirotti et al., 2014). In addition, this dimension would include adopting strategies to facilitate the mobility of persons with disabilities (Santos-Júnior et al., 2020; SEGITTUR, 2015).

Thus, the mobility and accessibility dimension has been organized into three subdimensions (see Fig. 4): sustainable mobility (alternative transport, bicycle lines, electric public transport, and sidewalk), transport system (airport, public transport, and transport card), and accessibility (accessibility legislation, and inclusive spaces).

Figura nº 4. Mobility and accessibility dimension
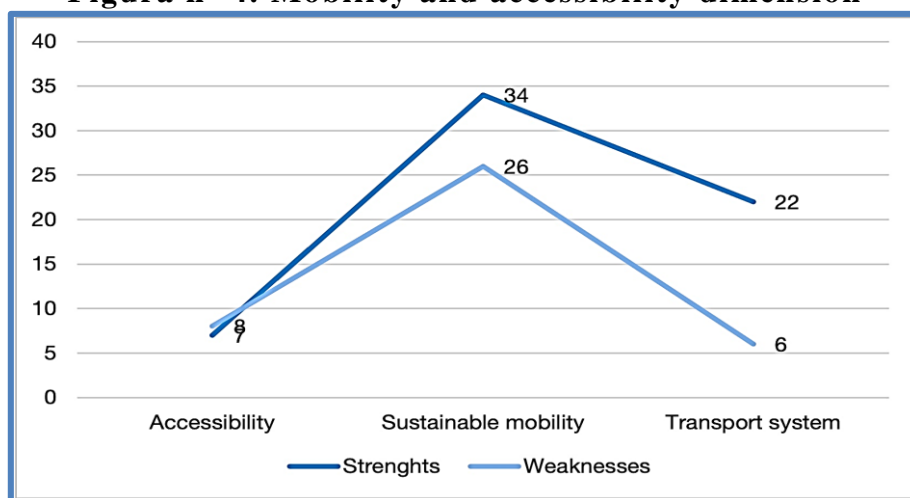
Source: Own elaboration.

Regarding sustainable mobility, among the positive points, investments in urban management and the search for a healthy lifestyle for the population are highlighted. There is also more investment in bike lanes: "Well, in recent years in Lisbon, the issue of creating and expanding the network of cycle paths has come to the fore." (Ex6). As well as investment in electric public transport, as in the case of Tram 28.

It is necessary to consider the existence of programs for investments in smart and integrated mobility solutions in the city of Lisbon, as is the case of the Foresting Innovation in

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Tourism (FIT) and Sharing Cities programs. In addition, there will be an effort by the national, regional, and municipal governments to implement programs and projects to integrate mobility infrastructure, integrate ticketing and payment models for urban services, sustainable mobility in tourist destinations, etc. (CCDRLVT, 2018; CML, 2009; Turismo de Portugal, 2017). From this perspective, it has been explained the importance of the integrated public transport card "VIVA Viagem" which gives access to different transport modalities and discounts to cultural attractions, in addition to encouraging the use of public transport.

Regarding the accessibility subdimension, it can be understood that there is a process of improving the accessibility of the city through the actions of public and private institutions. To judge the accessibility of people, mainly the elderly and people with disabilities. For example, the case of the use of scooters, "that are dropped anywhere, are obstacles for people with reduced mobility." (Ex2). Then, it has also been commented on the famous Portuguese sidewalks, which, despite being a type of historical construction, can be a problem in terms of accessibility and mobility of people. Finally, it has been reported on the existence of a legal standard of accessibility.

Technology Dimension. Regarding the technology dimension, it is understood that ICT would be a transversal factor that enables and supports STDs (Baggio et al., 2020; Boes et al., 2015; Ivars-Baidal et al., 2017) However, technology alone is not enough to set up an STD (Baggio et al., 2020; Boes et al., 2015).

Figura nº 5. Technology dimension
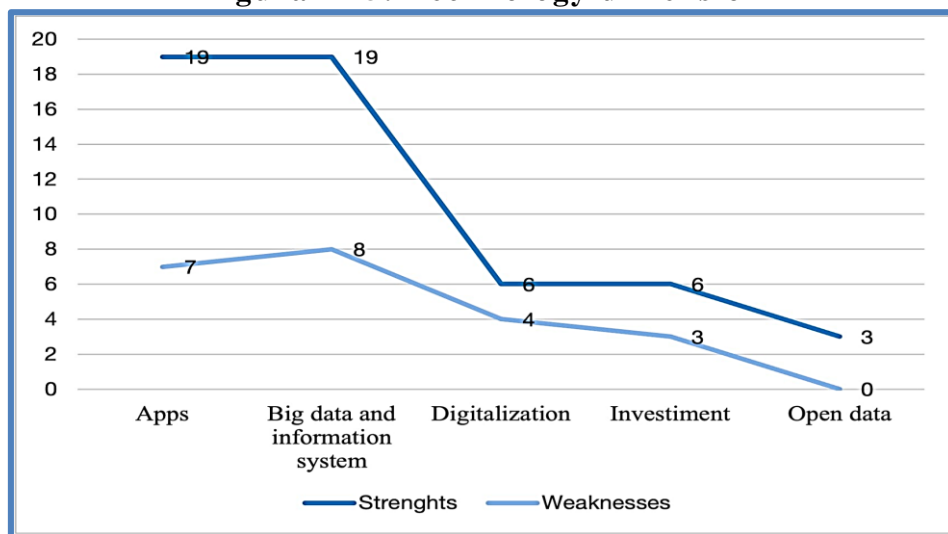
Source: Own elaboration.

Therefore, efficient management of the city's information system becomes necessary to provide well-being to people. Otherwise, it is just a digital city. Thus, it has been established

that the technology dimension consists of five subdimensions: smart applications/solutions, big data and information systems, and the digitalization of the tourist destination to better meet the needs of visitors and residents (See Fig. 5).

In the field of STCs, the city of Lisbon has digital transition strategies (CCDRLVT, 2020). Regarding smart solutions, it can be considered that experts perceive the existence of many Apps for public and private institutions, which are related to urban management and tourism. As an example of municipal technological innovation, the GeoEstrela APP <https://estrela.city-platform.com/app/gso/> of the Junta de Freguesia Estrela has been mentioned.

On the other hand, it is also believed that the excess of Apps and information can complicate the lives of tourists and residents. Therefore, the connection and integration of existing technological tools to generate people's well-being would be relevant: "We have a proliferation of applications, which often the big problem of technology and is that when we have more information, we have more applications, we have more websites, ... creating a lot of confusion and discomfort for people." (Ex3).

Concerning big data management and information system, it has been commented that the CML has open data platforms, for example, the "Lisboa Inteligente" platform. However, the city's tourist information should be better structured and updated through the public and private sectors, with the support of ICT companies. Finally, there seems to be an increase in government investment in urban and tourist infrastructure, transforming Lisbon into an STC. In addition, he commented on private sector investments to improve the tourism offer, which would be more linked to marketing promotion.

Innovation and Entrepreneurship Dimension: Regarding the innovation and entrepreneurship dimension is configured as another soft element of the STD (Boes et al., 2015) and refers mainly to technological innovation, urban innovation, the smart business ecosystem, and the creation of new products/services and new processes, which contributes to the competitiveness of the tourist destination (Boes et al., 2016; Gretzel et al., 2015b) and market diversification (González-Reverté, 2019).

Therefore, four subdimensions have been categorized, all of which have received favorable inferences (See Fig. 6): business innovation (17), MICE Tourism (7), sharing economy (2), and startups (20). In this way, there is a perception of the existence of new businesses in the city encouraged by tourism activity, as well as the emergence of startups that are driven by the LISPOLIS technology park: "There is specific support to

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accelerate the incubation processes in the tourism sector, which Turismo de Portugal provides." (Ex9).

Tourism innovation favors the competitiveness and sustainability of tourism companies in Portugal (Turismo de Portugal, 2021). In this sense, tourism innovation has the incentive of national initiatives, such as the Tourism 4.0 program and the entrepreneurship program in the school of hospitality and tourism (Turismo de Portugal, 2017).

Then, the existence of new products and tourist attractions has also been mentioned, such as the Pilar 7 Puente 25 de Abril Experience <https://www.visitlisboa.com/pt-pt/locais/experiencia-pilar-7>, which allows an interactive, personalized and smart experience, through the use of new technologies (Femenia-Serra & Neuhofer, 2018).

Figura nº 6. Innovation and entrepreneurship
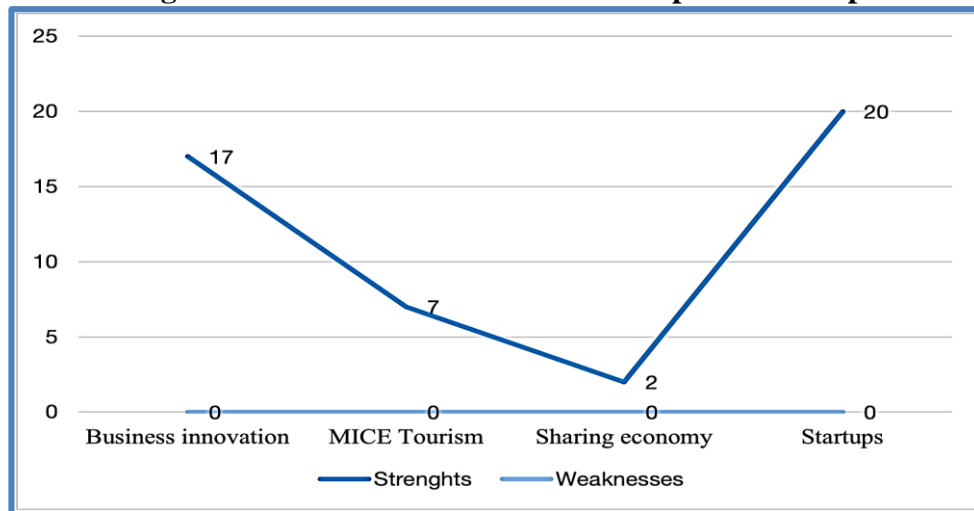
Source: Own elaboration.

Now, regarding MICE Tourism, two relevant events that have promoted tourism and the urban transformation of the city of Lisbon were pointed out by recovering spaces that were abandoned, which are the Web Summit and Expo 98. Such events have as their leading articulator the ATL: "Regarding the capture of events and ATL, some systematization is being worked on to develop some equipment, to develop the capture of events." (Ex3).

In addition, it has been commented that sharing economy platforms (Yi et al., 2020) have completely changed the city of Lisbon, bringing both positive and negative impacts: "I think there have been several technological innovations in recent years, since the beginning of all these sharing economy platforms, this has completely transformed the city of Lisbon, hasn't it?" (Ex4).

People Dimension. As for the people dimension (Giffinger et al., 2007), it should be borne in mind that the

management of the STC must also focus on residents, not only tourists. Therefore, human capital and social capital were included as subdimensions of the people dimension (See Fig. 7), which represent the "soft" elements of the STD (Boes et al., 2015). Human capital could be understood as the capacities and "knowledge competencies themselves" (Ex8).

On the other hand, social capital refers to social interactions between stakeholders, which can be facilitated through ICT (Santos-Júnior et al., 2020). According to the document "Estratégia Turismo 2027" (Turismo de Portugal, 2017), people would be one of the main focuses of developing tourism in Portugal.

Figura nº 7. People dimension
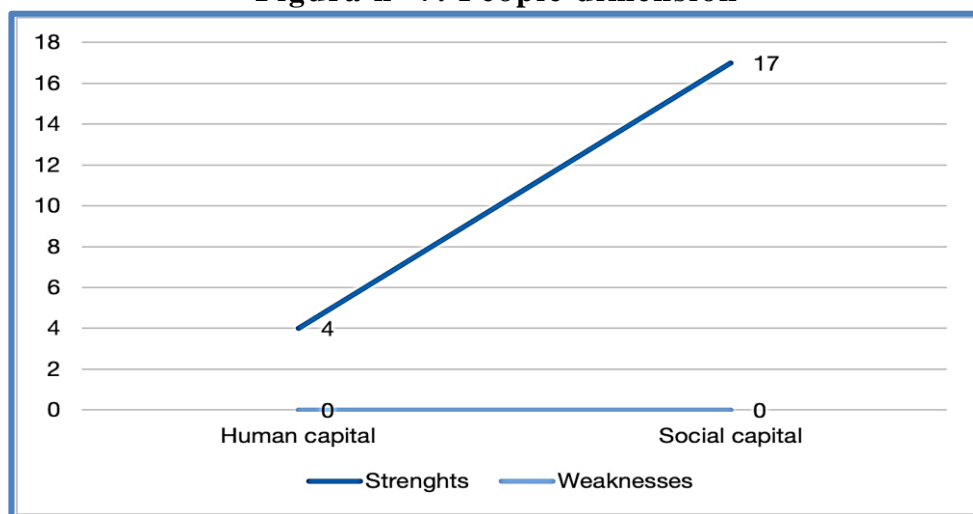
Source: Own elaboration.

Likewise, from the interaction between human capital and social capital, it would be possible to (co-)create innovation, which would influence the process of governance and competitiveness of the STC. Therefore, as one respondent illustrates: "... it is in this dynamic of interaction, between one value and another, and that, in the end, they create the smart tourism destination." (Ex7).

From the perspective of human capital, it has been mentioned that residents have felt empowered in the last decade regarding intellectual and cultural growth. Likewise, it is noted that investment in human capital is a strategy highlighted in the official documents at the regional and municipal level (CCDRLVT, 2018; CCDRLVT, 2020; CML, 2009), and national scope for the affirmation of Portugal as a smart destination (Turismo de Portugal, 2017).

On the other hand, social capital would be associated with Lisbon residents' friendly and hospitable behavior, which could stimulate social interactions with visitors: "I think the city has become more agile, more friendly to residents, despite everything [laughs], right? And this has come as a result, in

fact, of technological development and applications to city life." (Ex8).

Environmental Sustainability Dimension. Finally, about environmental sustainability, it would be a dimension that "implies the use of technologies to improve the crucial aspects of life in the city" (Appio et al., 2019, p. 3). In this sense, the STD should be "... a space, a territory, all of this is based on planning... thinking about people and the environment the future." (Ex3).

In the case of Lisbon, environmental sustainability is a tourism development strategy adopted by the government of Portugal, which aims to promote rational management of water resources, increase the levels of energy efficiency of tourism companies, promote the efficient management of waste from tourism activity, and promote the agenda to the circular economy (Turismo de Portugal, 2017, 2021).

Then, the management of tourist destinations must be attentive to the impacts of tourism (Santos-Júnior et al., 2020) to mitigate the adverse effects of tourism activity on the life of the local community, as one of the interviewees states: "The community only gets very upset if everyone in your building comes and goes and makes noise. And make much garbage, and you must clean that's what bothers the community a lot." (Ex1).

Therefore, for this dimension, three subdimensions were categorized: energy efficiency, green areas, and pollution (Neirotti et al., 2014), as can be seen in Fig. 8. For its part, the pollution subdimension is associated with the increase in urbanization and the tourist flow, being contextualized by the garbage and noise factors, receiving the most significant number of inferences, both positive and negative.

Figura nº 8. Environmental sustainability dimension
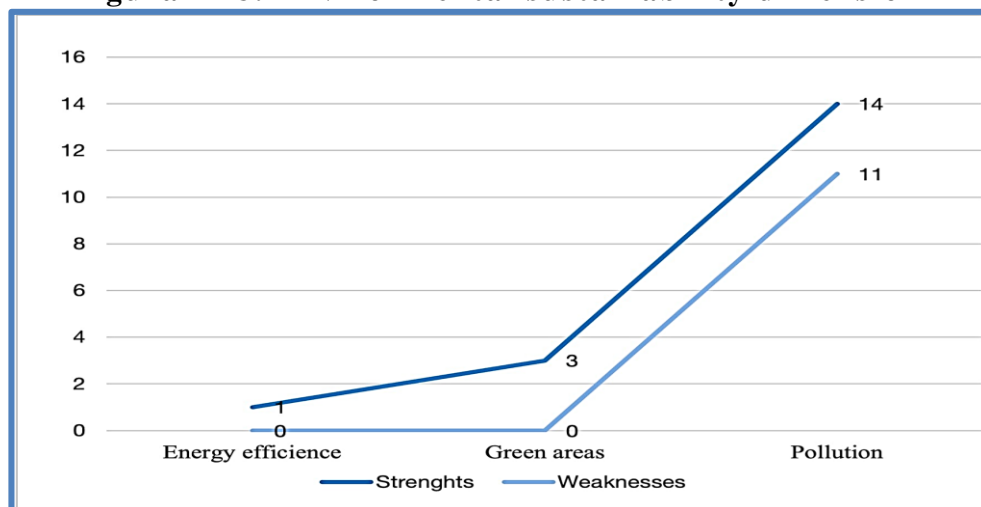
Source: Own elaboration.

According to the perception of some of the interviewees, the smart collection of garbage is already observed in some areas of the city through sensors and information systems (Appio et al., 2019), but that could be improved and expanded. "Where the garbage trucks should first go to collect? What are the types of routes? By the way, the route is not always the same; therefore, the routes are according to whether the equipment is overcrowded or not." (Ex5).

Likewise, it has also been opined that tourism businesses and tourists should be held responsible for possible impacts of tourist activity, such as garbage and noise: "There is more garbage, it is the normal citizen who must pay a higher garbage rate because people invade the city, it shouldn't be like that. Those who must pay this are the hotels." (Ex1).

On the other hand, the implementation of efficient energy system in some public and private institutions have already been observed: "[...] I think much progress has also been made in the field of energy efficiency, in public institutions, in hotels, I think this is very visible." (Ex4). In addition, there is also the preservation and creation of green spaces in the city, demonstrating greater attention to environmental and sustainability issues on the part of Lisbon's urban management. Based on these sustainable actions, the city achieved the European Green Capital award in 2020.

6. CONCLUSION

This study focused on analyzing Lisbon as an STC, based on the vision of scientific experts, having as methods bibliographic analysis, documentary analysis, semi-structured interviews, and content analysis. Therefore, it is understood that STCs would be one of these smart places, which emphasizes the strong relationship between urban tourism and (Gelbman, 2020).

Thus, from the deductive and inductive methods, it is inferred that both the STD and the STC comprise environmental sustainability, people, innovation and entrepreneurship, technology, mobility, accessibility, living, and governance dimensions. Therefore, the technological factor is essential for configuring smart places, but they must be associated with other factors (Boes et al., 2015; Ivars-Baidal et al., 2017).

The results show that Lisbon has initiatives for an STC but is still in the initial development phase. Among the main actions is Lisbon's urban governance and tourism process, which mainly encompasses collaborative leadership through public-private institutions, such as the ATL and the E-Nova agency.

In addition, it was noted the existence of relevant strategic instruments, programs, and projects that promote the development of Lisbon toward the configuration of an STC. It can be said that the CML plays a vital role in the governance of Lisbon, including the participation of private sector agents. Likewise, it is understood that citizen participation in urban and tourism management should be more active and influential. Another relevant aspect that stimulates the configuration of Lisbon as an STC is related to the life dimension. Thus, Lisbon can be classified as an urban tourist destination with a wide tourist offer and a relevant historical-cultural heritage, which invests in the innovation of new tourism products and technological innovation, as well as in the requalification of urban and tourist spaces, to generate a value-added tourist experience (Buhalis & Amaranggana, 2013; Femenia-Serra & Neuhofer, 2018; Gretzel et al., 2015a).

On the other hand, as in most global tourist cities, Lisbon is already beginning to have concerns regarding the development of tourism activity, which directly influences the residents' quality of life (Santos-Júnior et al., 2020). Thus, the theme of overtourism and tourist gentrification (García-Hernández et al., 2019; Ivars-Baidal, Hernández, et al., 2019; Mendes, 2017), especially in the historic areas of Lisbon, challenge for public power.

In this sense, the CML, with the support of the Government of Portugal, could adopt some measures that are capable of mitigating the impacts of tourism, for example, the creation of new tourism and cultural products in other areas of the city, the regulation of sharing economy businesses, as well as the formulation and implementation of "a city policy that involves urban rehabilitation by and for people, combating real estate speculation and promoting the social rental market" (Mendes, 2017, p. 505).

It is essential to highlight the existence of innovative and sustainable actions related to the mobility of the city, which include, for example, the incentive for the use of alternative transport, the implementation of electric buses, the existence of the integrated public transport card, and applications that facilitate the use of public transport. On the other hand, accessibility is a factor that must have better attention from public power.

To conclude, it was identified that Lisbon stands out for its human and social capital, for having a high educational and cultural level of the population, as well as the hospitality and sympathy of the people, which can contribute to the formation of the tourist experience. From the perspective of innovation and entrepreneurship, it is essential to point out the existence of numerous startups, including tourism and ICT companies, in addition to Lisbon's strong vocation for major international events.

It should be noted that Lisbon is a city recognized for the existence of innovative initiatives in the field of environmental sustainability, presenting a significant amount of green spaces, as well as the energy efficiency management of public and private buildings (Neirotti et al., 2014).

Considering the few theoretical studies and case studies on the dimensions or components of STDs, it is believed that this research can serve as a proposal for the constitution of a theoretical-methodological model. In addition, the results can contribute to the decision-makers and governance of tourism in the city of Lisbon towards configuring an STC.

In short, as a limitation of this study, the low number of representatives of university institutions and research centers that constitute the sampling is recognized. Considering the multidisciplinary nature of the subject under investigation, and despite the theoretical saturation of the previous topic due to the absence of new elements in the results of the interviews, the sampling with representatives of other areas of knowledge and other institutions could be expanded. In future research lines, the construction of indicators of the STC is suggested, as well as the realization of investigations to know the perception of the residents and other stakeholders of the STD.

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