ELEMENTS OF ATTRACTIVENESS OF KAUNAS AS A SMART CITY FOR TOURISTS

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Annotation. This paper deals with the elements of attractiveness as a smart city. The authors of the research defined and described the main elements of attractiveness as a smart city for tourists and analysed these elements through the example of Kaunas city.

The results of the research showed that Kaunas, according to the respondents, is a smart city and the technology introduced in Kaunas could attract more tourists. According to the research, all of the analysed technologies are visible and useful, but although they were acceptable and positively evaluated, the study showed that the abandonment of old methods (acquisition of public transport tickets from the driver, operations in banks, tourism information centre services, etc.) would not be worthwhile as they especially useful for the elderly tourist.

Keywords: smart city; elements of attractiveness, tourism.

INTRODUCTION

Topicality of the research: Smart cities encourage people to use online applications, make service orders electronically, and many services are available with a mobile phone, which makes traveling easier and easier. It's useful for a modern-day online hustler who is actively residing, whose time-saving is very important, so a smart city can drive people who are not indifferent to innovation. The concept of a 'smart city' is currently focused on technological competence adapted to the development of urban space in various aspects, but while landscape technologies are influenced by the perception of the landscape, the cultural aspect is often considered less important and unnoticed.

Aim of the research: to find out the elements of attractiveness of a smart city for tourists through the example of Kaunas city.

Methodology of the research: scientific literature, questionnaire survey, data systematization and graphic statistics.

THE CONCEPT OF A SMART CITY AND ITS EXPRESSIVE ELEMENTS

In the 21st century almost a third of all travels are business travels, the specifics of which require not only amenities, but also prompt service, information and communication. Similar travel requirements are also made by travelers who are actively using the technology. Smart cities are for these groups of travelers. In the current society, it is acceptable for everyone to have an Internet connection, a telephone or a computer, to use various applications, which is typical for a smart city. In order to fully understand the concept of a 'smart city' and the attractiveness of such cities for tourists, it is necessary to clarify the concept of a 'smart city', to distinguish the elements of attractiveness of a smart city, to find links between Kaunas as a smart city for tourists.

Nowadays, the concept of a smart city is beginning to become popular all over the world, and it is believed that it began already since the middle of 2000s, when it began to actively promote everyone's use of the new technologies.

At the moment, the term 'smart city' means a tie between social and technological processes in modern society. In particular, this includes the process of science and technology progress and continuous improvement, as well as the spread of technology and its implementation in all areas of human life. The second process is the desire to improve the quality of life and create comfortable living conditions that are characteristic of the modern development of the city's environment. The third process relates to the reorganization of the territorial management system, the use of innovative resource allocation methods, the identification of tasks and the coordination of their implementation. It is assumed that the synergy in the three processes should create new social values and sustainable urban development (Gil-Garcia, Pardo & Nam, 2015).

Although the concept of smart city is still quite new, but it's quite popular among researchers: McLaren and Agyeman (2015) and Peris-Ortiz, Bennett and Yabar (2016) explored a smart and sustainable city, Chan (2018) analysed a smart city and what impact it had on people's lifestyle changes, Deakin and Al Waer (2011) distinguished between clever and smart features. Researchers Giffinger, Fertner, Kramar, Kalasek, Pichler-Milanovic and Meijers (2007) compared and monetized the great European cities in terms of smart cities.

Researchers have identified a clear overlapping of definitions, in which cities have been portrayed in various ways. For example, Chourabi et al. (2012) pointed out that smart cities are digital, creative, based on a variety of attributes, such as the ability to manage stakeholder relationships and use IT infrastructure. One of the first works of Hall (2000) looks at a smart cities as having the opportunity to integrate through information and technology. Other researchers in this topic focus on the links between innovation and entrepreneurship.

However, the concept of a smart city is currently focusing on the technological competence of urban sprawl development.

It is possible to notice that there are many smart cities in the world, but only Vilnius - the only smart city in Lithuania - is mentioned in their list.

Although landscape perception is influenced by the advanced technology, the cultural aspect is often considered less relevant. Many scientists distinguish between different elements of a smart city. Contributors Hall (2000), Lombardi, Giordano, Farouh and Yousef (2012), Chourabi et al. (2012), Gil-Garcia and Aldama-Nalda (2012) distinguish between stakeholders, information technology and e-government as the key elements of a smart city, while Kourtit and Nijkamp (2012), Nam and Pardo (2011) emphasize the intensity of knowledge and information as essential elements of a smart city. Other authors such as Hollands (2008), Paskaleva (2009), Zygiar (2013) highlight innovation and entrepreneurship, while Batty (2013), Anthopoulos and Vakali (2012) - urban planners. The opinions of other authors and researchers also differed. Gil-Garcia, Zhang and Puron-Cid (2016) refer to the general participation of the citizens, the management of a smart city are distinguished by Meijer and Bolívar (2016), Pereira, Macadar, and Testa (2016). By describing smart cities, Harrison, Woods and Roberts (2012), Kuk and Davies (2011) highlight open government and open data as exceptional smart city elements, while Gil-Garcia, Pardo and Nam (2015), refer to the environmental sustainability.
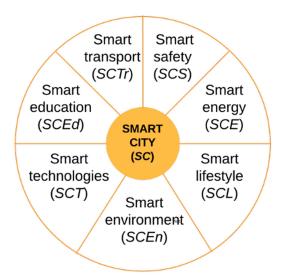

Fig 1. **The main elements of the concept of a smart city**
(Source: made by the authors, based on Luciano, 2017; „GreenMatch", 2017)

Other authors talk about social and cultural pluralism (Priano & Guerra, 2014), education and training (Lazaroiu & Roscia, 2012), health services (Carli, Dotoli, Pellegrino & Ranieri, 2013) and social security and safety (Afonso, Brito, do Nascimento, da Costa, Alvaro, & Garcia, 2015). Speaking of a smart city, economic planners and organizations are described by Perboli, De Marco, Perfetti and Marone (2014), and Aguilar, Sanchez, Jerez, Mendonca, (2017) and Hashem, Yaqoob, Anuar, Mokhtar, Gani, Khan, (2015). Therefore, one or several smart city elements can not be distinguished, they can only be grouped together and find that all elements are important and all contribute to the creation of a smart city.

As Figure 1 shows, a smart city consists of seven main elements: smart transport (SC_{Tr}), smart energy (SC_E), smart technologies (SC_T), smart lifestyle (SC_L), smart education (SC_{Ed}), smart safety (SC_S) and smart environments (SC_{Ed}). If the city has only a few of the listed elements, this may mean that the city is preparing to become smart and continues to actively foster these ideas.

Thus, smart cities are becoming more and more popular and they not only improve the lives of the local people, but also take into account the saving of energy and other resources. It even encourages a more active lifestyle when choosing bikes as a vehicle, teaches to foster cost savings, waste sorting, and more.

It can be noted that Lithuania is gradually moving towards the development of smart cities by introducing the above-mentioned elements, and it is therefore important to analyse which of them is important for tourism development, since both local and inbound tourism is focused on the active and self-contained tourist.

ATTRACTION OF KAUNAS AS A SMART CITY TO TOURISTS

Kaunas city is not as big as the big cities of the world, but this does not mean that it can not be modern or smart. The fact that the city is not large only provides better opportunities for developing and deploying new technologies, and making it easier to test, try and adapt innovations.

Kaunas is a good region for developing business with technology and developing tourism, as Kaunas offers excellent logistics opportunities by road, rail and air, with a high-speed wireless internet connection, which allows to use special applications to get acquainted with the visiting objects, find museum addresses, exhibit descriptions, find public transport routes, etc. It is also very easy to rent cars or bikes in the city with bicycle paths developed throughout the whole city. The website "Kauno gidas" (kaunogidas.lt) provides information on QR codes and how to use them.

So, Kaunas is full of innovations, but it is necessary to find out whether or not Kaunas attracts tourists as a smart city.

RESEARCH METHODOLOGY

The aim of the research is to find out whether Kaunas has elements of a smart city that improve the quality of life of residents and attract tourists. The research method was qualitative research using a questionnaire consisting of 13 questions: 4 questions with one optional answer, 1 open question and 8 matrix type questions. The total study involved 48 respondents. Respondents were smart people, who are interested and use smart technologies when traveling. They were tourists, Lithuanian and foreigners. All respondents used the elements of Kaunas as a smart city. The study was conducted in April 2018. An analysis of the scientific literature has shown that there are seven elements of a smart city so far, but only six elements of a smart city can be analysed in this paper because they directly relate to tourism and tourists can appreciate these elements. Respondents do not appreciate the "smart way of life" of the seventh element, as this element is relevant to indigenous peoples, so it was refused to include it in the research questionnaire based on the research ethics.

RESEARCH RESULTS

The study showed that as much as 96 per cent of respondents believe that the advanced technologies used in Kaunas city would be attractive for tourists and would encourage them to visit Kaunas and only 2 per cent replied "No" or "No opinion". This shows that the implementation of inhumane technologies in Kaunas city really attracts tourists and encourages them to come, which is why it is very useful not only for Kaunas but also for Lithuania in a whole.

Smart urban transport is one of the smartest elements of the city, as tourists, especially those traveling independently, often use it and can appreciate it. The results of the assessment on smart public transport in Kaunas are shown in Figure 2.

As can be seen from Figure 2 respondents evaluated the novelty of the transport (54 per cent rated as 'good' and 32 per cent as 'very good'), electronic tickets (44 per cent rated as 'good' and 48 per cent as 'very good'), TV screens inside the buses (42 per cent rated as 'good', but even 12 per cent rated as 'bad'), information boards at the stops (44 per cent rated as 'good' and 36 per cent as 'very good'), traffic lights with timers and sound signals (64 per cent rated as 'very good'). The study showed that smart transport is convenient, beneficial and therefore positively evaluated.
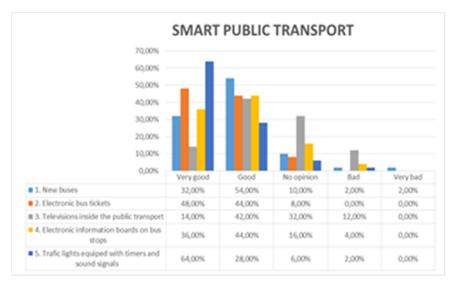
Figure 2. **Results of the Assessment on Smart Public Transport** (SC_{Tr}) **in Kaunas**

Traveling around the city is also closely connected with energy, because lighting and cleanliness in the city create positive emotions and give a feeling of newness to the arriving tourists, therefore, it was surveyed how the element of smart energetics in a smart city is appreciated. The opinion of most respondents is similar (see Figure 3).
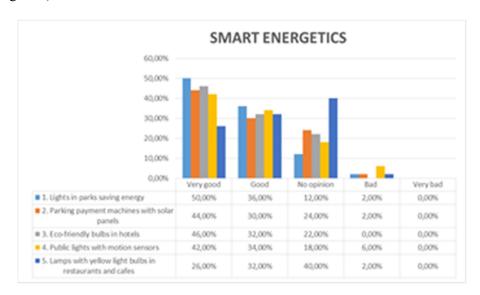

Figure 3. **Results of the Assessment on Smart Energetics** (SC_E) **in Kaunas**

One more element of a smart city smart communication technologies, as a smart city facilitates and improves the needs of citizens, businesses and tourists by integrating the use of original information and communication technologies, especially in the areas of communication, mobility, environment and energy efficiency.

As shown in Figure 4, almost half of all respondents (44 per cent) rated free Wi-Fi as 'very good', but about 10 per cent of them rated it as 'bad', which indicates that tourists sometime loose the places where Wi-Fi is working. The ability to rent a bike or a car with a help of a phone application was estimated by the vast majority of respondents as 'very good' (52 per cent) and 'good' (42 per cent). When people scanned the QR code for information about the object, they rated 'good' (40 per cent), but a significant proportion (28 per cent) did not have an opinion on this point, indicating that this IT part is not used by the tourists. The majority of people rated the possibility to book tours, excursions with the application on the phone as 'very good' (36 per cent) and as 'good' (36 per cent). For faster, more convenient service in restaurants, when cashiers, waiters have touch screen pads respondents rated 'good' (44 per cent) (see Figure 4).
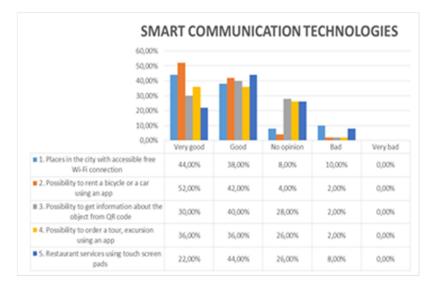
SMART COMMUNICATION TECHNOLOGIES

	Very good	Good	No opinion	Bad	Very bad
1. Places in the city with accessible free Wi-Fi connection	44,00%	38,00%	8,00%	10,00%	0,00%
2. Possibility to rent a bicycle or a car using an app	52,00%	42,00%	4,00%	2,00%	0,00%
3. Possibility to get information about the object from QR code	30,00%	40,00%	28,00%	2,00%	0,00%
4. Possibility to order a tour, excursion using an app	36,00%	36,00%	26,00%	2,00%	0,00%
5. Restaurant services using touch screen pads	22,00%	44,00%	26,00%	8,00%	0,00%

Figure 4. **Results of the Assessment on Smart Communication Technologies** (SC_T) **in Kaunas**

Another element of a smart city is smart education, which is directly related to tourism, because travel is one of the ways of education. How respondents value smart education in Kaunas city, is presented in Figure 5.
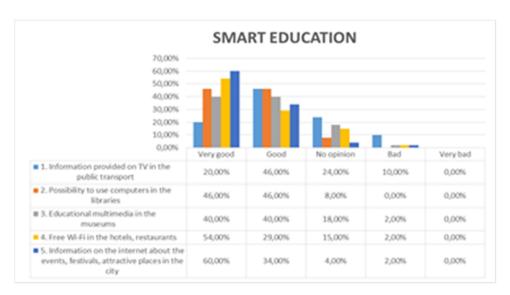
SMART EDUCATION

	Very good	Good	No opinion	Bad	Very bad
1. Information provided on TV in the public transport	20,00%	46,00%	24,00%	10,00%	0,00%
2. Possibility to use computers in the libraries	46,00%	46,00%	8,00%	0,00%	0,00%
3. Educational multimedia in the museums	40,00%	40,00%	18,00%	2,00%	0,00%
4. Free Wi-Fi in the hotels, restaurants	54,00%	29,00%	15,00%	2,00%	0,00%
5. Information on the internet about the events, festivals, attractive places in the city	60,00%	34,00%	4,00%	2,00%	0,00%

Figure 5**. Results of the Assessment on Smart Education** (SC_{Ed}) **in Kaunas**

Smart safety is another element of a smart city that is relevant to all people, whether it is a local resident or a tourist. Responsibilities were asked to evaluate only the safety features they usually encounter while traveling. The results of the study are presented in Figure 6.

As can be seen from Figure 6, smart safety was rated as 'good' and 'very good in all positions by more than 50 per cent of the respondents, what shows that though there is still room for improvement in Kaunas city, but also that today's situation is good.

The most recent element of a smart city is smart environment. The respondents rated bicycle paths, sorting of garbage, public transport and other areas of smart environment (see Figure 7).

In theory, it was mentioned that if a tourist needs some services but infrastructure, cleanliness or green space is not convenient, then it will only cause negative emotions and associations with that city. As you can see in Figure 7, 'very good' and 'good' evaluations appeared in many areas, but it should be noted that even 24 per cent of the respondents' traffic congestion was rated as 'bad'. This negative assessment was received because Kaunas is currently focusing on refurbishing urban streets by changing the asphalt pavement, distributing streets, improving street marking, etc., which is a major congestion in carrying out these works.
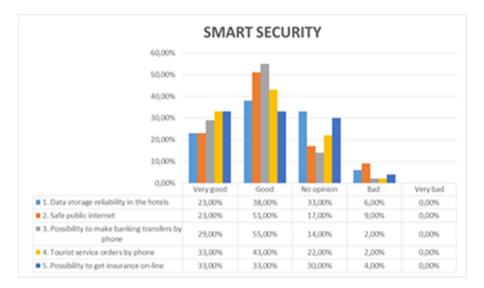
Figure 6. **Results of the Assessment on Smart Security** (SC_S) **in Kaunas**

The municipality of Kaunas has placed billboards in place of works that explain the situation and apologize for the temporary inconvenience. It is likely that due to these stands some respondents considered the congestion small, because they will certainly decrease in view of the future.
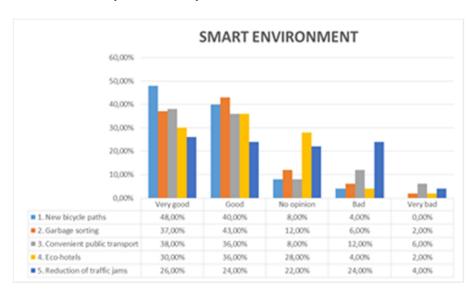

Figure 7. **Results of the Assessment on Smart Environment** (SC_{En}) **in Kaunas**

Summing up all the results of the research, it can be argued that Kaunas is a smart city and the tourists of the current state-of-the-art technology are valued as positively appreciable and useful.

CONCLUSIONS

1. The analysis and systematization of scientific literature suggests that the key elements of the concept of a smart city are: smart transport, safety, environment, education, technology, energy and lifestyle, all of which are innovations that allow faster, more convenient, safer traveling and get acquainted with the culture, customs, traditions of other countries. Smart cities are being developed and becoming more and more popular, because they not only improve the lives of the local people, but also take into account the saving of energy and other resources, promote more active lifestyle, and teach you to foster cost savings in your own city and in other places as well. The world's smartest cities are: New York, Tokyo and London. Considering the Lithuania's case, it is seen that Kaunas invests in smart technologies more than the other cities.

2. In Kaunas, as in the other smart cities, a high-speed wireless Internet connection is working, which allows you to get information on public transport routes, tourist attractions, bicycles, etc., using

special applications. Bicycle paths infrastructure is well developed; waste sorting system is being improving, it is being invested in traffic jam reduction, road cleaning, energy saving (using solar panels) and other activities that directly relate to the concept of a smart city. Thus, Kaunas meets the requirements of a smart city and can be described as a smart city.

3. Summarizing all the results of the research, it was discovered that Kaunas, according to the respondents, is a smart city and the technology introduced in Kaunas could attract more tourists. According to the respondents, all of the above technologies are visible and useful, but although they were acceptable and positively evaluated, the study showed that the abandonment of old methods (acquisition of public transport tickets from the driver, operations in banks, tourism information centre services, etc.) would not be worthwhile as they especially useful for the elderly tourist.

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