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Start-up Project: Report on Survey of Needs

1 INTRODUCTION

With the digital transformation, the groundwork has been laid for the formation of a society model that can correctly interpret and process information in people's daily lives, question the environment they live in and adopt the principle of lifelong learning. Developing information and communication technologies are effective in city structures as in every field. Cities that cannot make use of technological facilities properly cannot respond to the needs and expectations of citizens. Thanks to smart cities, urban living spaces and services are digitalized and connected to each other. In this case, it is aimed to increase the quality of life of citizens by saving cost, time and energy. The purpose of this research is to reveal how participation can be developed in smart cities, why cities should turn into a smart city and to what extent smart city applications can be used.

2 CONCEPTUAL FRAMEWORK

2.1 Digital Transformation Concept

Digital transformation can be defined as the process that enables information and communication technologies to serve the needs of citizens, bringing life to a more livable level. This transformation process is essentially not only for people, but also for all organizations. In the current period, organizations that follow digitalization and use new technologies also gain an advantage in terms of competitive advantage. There are inequalities in access to the Internet even between countries and even between countries' cities. Information and communication technologies play a key role in how to bridge the gap between developed countries and others. The use of information and communication technologies is an important need for equality not only for countries but also for individuals. Therefore, as the use of technology is related to economic power, it may cause polarization and classification within the society.

The digital transformation experienced after the development in information and communication technologies enables some processes to be simplified. For example, payments can be made digitally and logistics costs can be reduced. On the other hand, at the level of information exchange mechanisms, it facilitates demand awareness and cultural diversity as well as information and product design (Gensollen, 2007, p.177). Rogers states that this transformation is not about technology, but about strategy and way of thinking, and emphasizes that more strategic responsibilities should be undertaken and focus on new technologies. He also underlined that in order to adapt to the digital age, to grow and to create their own

strategies, it is necessary to utilize service user networks, to make improvements for competition, to transform data into assets, to innovate and to add value (2007, p.14).

On the other hand, digital transformation paved the way for the formation of a society model that can correctly interpret and use information in people's daily lives, question the environment in which they live, and adopt the principle of lifelong learning. Many studies and reports have identified digital transformation as a strategic priority area. This is because, digital transformation involves social transformation involving individuals and the information and communication sector, the penetration of information and communication technologies into the business world, citizen-oriented service transformation, modernization of public administration, global competitive information technologies, competitive common and cheap communication infrastructure and services, innovation with research and development activities. It includes development. The point of attention in the studies is that it covers all segments of the society and is aimed at increasing the benefit and added value to the whole society.

2.2 Smart City Concept

Although it is mentioned in some studies that the concept of smart city is urban services, the basis of it is the improvement of the living standards of the citizens. In other words, all smart urban services developed are designed to improve the welfare of individuals. It also encourages citizen participation to improve the relationship between smart cities, business and local governments (Brunn et al., 2012, p.589). In the press release published by the European Investment Bank on June 4, 2014 entitled “Smart cities for smart citizens”, it was stated that cities have no choice but to become smart, regardless of their size. In addition, it has been announced that it is necessary to produce smart and sustainable solutions in order to better meet the basic needs of citizens and increase their quality of life.

The smart city concept has been developed to offer citizens a high quality of life and an easier life. Smart cities are getting smarter day by day compared to the past as a result of the development of digital technologies. Since sustainability is the basis of smart cities, there is a focus on efficiency in all solutions. For example, a smart city application to be implemented in the water distribution network of the city is expected to reduce the loss and leakage rate while at the same time protecting natural resources. The effect of this that spreads to the citizens includes the creation of low usage fees, as well as the continuous monitoring of the quality of the water, protecting the public health and bringing the citizens together with high service quality. When we look at the smart city definitions in the literature, the following definitions are encountered. Among the main reasons for the creation of smart cities, smart cities are related to the relationships between people and everyday objects that surround them. It is important to use e-government applications in a smart city in terms of encouraging the participation of individuals in reporting their problems and planning (Popescul & Radu, 2016). It is a system that covers city administration, education, health, public safety, transportation and public services in order to provide more intelligent, interconnected and efficient critical

infrastructure components and services by using smart computer technologies (Washburn & Sindhu, 2010, p.2).

According to another definition, it is a city that monitors and integrates all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, transportation and airports. At the same time, it is a city that can better optimize its water and energy consumption, its resources, plan preventive maintenance activities, and provide maximum service to its citizens who do not neglect security (Hall, 2000). Three different remarkable approaches have been determined from the definitions of smart cities (Abella et al., 2015, p.840). These are sustainable smart cities, sensor smart cities and collaborative smart cities.

- *Sustainable Smart City:* One of the most popular approaches for smart cities is to consider energy consumption. In this approach, great importance is attached to energy savings, alternative energy sources and more efficient means of transportation. The biggest advantage of the approach is that investments can be easily converted into money savings.
- *Smart City with Sensors:* This approach emphasizes how the city is perceived by the citizens. The city manages thousands of different sensors such as traffic sensors, air pollution sensors, sound sensors, moisture sensors and camera sensors in a scattered structure. These sensors provide critical information to solve some of the city's most complex problems. However, it uses existing technology to manage the impressive amount of data generated. When using sensors with this potential, they can provide solutions to problems by providing a logical perspective.
- *Collaborative Smart City:* It is the third and popular approach of smart cities. This approach is based on the ability of its citizens to participate in the daily operations of the city. It contributes to the development of participatory policies in city management by operating digital participation mechanisms with the data provided to citizens.

Smart cities use automated auxiliary systems and digital systems for real-time data generation in order to use urban infrastructure components and services more efficiently and to connect these components to each other. The opportunities offered by information and communication technologies are used to support these systems. In the report published within the scope of the OECD green growth studies, it was stated that smart city applications could reach 400 billion USD per year in the global market in 2020, and it was stated that many cities are already adopting and following these new opportunities. In the same report, it was stated that one of the most important applications of smart city vehicles is the production, collection and dissemination of urban data and information (OECD, 2016, p.82).

2.3 Digital Transformation and Smart Cities

Today, innovative services are encountered in many areas such as education, health, agriculture and transportation through information and communication technologies. With digital transformation, the groundwork has been laid for the formation of a society model that can correctly interpret and process information in people's daily lives, question the environment

they live in and adopt the principle of lifelong learning. Developing technologies are also effective in city structures as in every field, and cities that cannot benefit from technological facilities as required cannot meet the needs and expectations of citizens. With the smart city concept, urban living spaces are digitalized and all objects in the city become interconnected within the scope of the internet of things. In this case, it is aimed to increase the quality of life of citizens by saving cost, time and energy.

With the development of information and communication technologies, the encirclement of our entire environment has made people a part of the global network. The digitalization of these technologies not only changes people's relations with each other, but also changes their perceptions of time and space. Thus, one-way and individual communication activities have been carried to a versatile dimension. With the development of industry and trade in our country, migration has started from rural areas dealing with agriculture to cities where industry and trade are developed. With the effect of this migration, three out of every four people have come to live in cities today. This increasing density of the population in cities has brought problems in areas such as transportation, housing, education, infrastructure, health, safety, environment and energy. Local governments should approach and solve these problems wisely and offer citizens a more livable city. Developments in information and communication technologies also offer different and innovative solutions to citizens under the title of smart city applications.

Castells states that in the digital age, the continuous transformation of communication technologies and the development of communication media affect all areas of social life through a network, as a constantly changing structure, global and local (2013, p.21). With the effect of developments in internet technologies, it has become possible for millions of people around the world to connect to a network with their computers. With the changing and developing infrastructure of communication technologies, the connection of objects apart from people is realized. Information and communication technologies, together with digitalization, cause the formation of social applications in a wide range of daily life and the routine renewal of human experiences. While these experiences include working styles, socialization, consumption, health, social services, safety, entertainment and socio-cultural environment perception, they also include attributing new meanings to these experiences (Castells et al., 2007, p.77). In this context, for the proliferation of electronic innovations in public services, the development of international competitiveness of states and an effective democratic social state performance, the characteristics of the innovation understanding of the public administrations in the field of e-government gain critical importance.

2.3.1 Smart City Functions

Cities have adopted different approaches based on technology providers' business models to develop smart solutions based on their location. As a matter of fact, rapidly growing and developing information technologies add new ones to their products and services with the opportunities provided by technology. Smart cities are evaluated with six basic dimensions (Madakam & Ramasmawy, 2014).

Smart Economy - Innovation and Competition

It basically involves focusing on high quality. While advocating for innovation and entrepreneurship, it focuses on the development of new and high technologies and promotes innovation to encourage closer ties between the domestic economy and the world economy.

Smart Citizens – Creativity

Citizens are the main reason for the existence of cities and policies. Therefore, the key to developing smarter cities is getting smart people involved. It is also the encouragement of the public to participate in public affairs. It aims to offer mobile education vehicles equipped with new technological devices to the service of citizens and contribute to their development so that the trainings provided by local governments can be delivered to the whole society.

Smart Governance - Participation and Empowerment

Smart city governance includes the use of electronic devices in large-scale organizations, including phones, fax machines, printers, computers, servers, and video conferencing systems, as well as these network components, including surveillance systems. With the technological devices to be used, active participation ways are opened for citizens in matters that concern them. The size of engagement needs to be increased and encouraged through online platforms and other appropriate channels.

Smart Mobility - Infrastructure and Transportation

Smart mobility supports the goals of the climate change response. It provides management of processes including energy security, real-time traffic management, vehicle management in passenger transportation, parking lot management, fleet management and bicycle use management. It also includes services such as providing support in the use of electric vehicles and car sharing services by optimizing the fees. It aims to increase the efficiency and service quality of urban transportation by using video surveillance and remote sensing techniques in order to make traffic management effective and efficient. Providing transportation with smart cards in public transportation, creating smart stops, setting up passenger information system, ensuring line optimization, smart parking systems, online parking reservation, making payments with mobile devices, reporting instant capacity in public transportation and establishing smart intersection management systems can be cited as examples of smart mobility.

Smart Environment - Natural Resources and Sustainability

With the rapid growth of the world population, the increase in diversity in the needs of societies has also led to a rapid increase in the demand for natural resources. The rapid consumption of natural resources has caused the residential areas to become more crowded and brought problems related to environmental pollution. Web-based and remote monitoring technologies are used to fully understand and analyze the distribution of public spaces and green spaces in order to encourage the proliferation of smart cities and green spaces. Thus, the implementation

of green city planning is planned. In smart cities, renewable energy sources are obtained from the existing energy flow in natural processes and used. These resources can be listed as solar energy, wind energy, geothermal energy, biomass energy and hydrogen energy.

Smart Life - Culture and Quality of Life

Smart cities use the internet of things technology to enable people to connect with each other, manage their homes and offices from outside more easily, interact more closely with their environment for smart living. At the same time, the use of online social platforms aims to improve the quality of life of the citizen. Thus, a healthier, happier and more vibrant lifestyle can be developed.

With smart cities, urban living spaces are expected to be digitalized, and all objects in the city are expected to become interconnected within the scope of the Internet of Things. In this case, it is aimed to increase the quality of life of the citizens by saving cost, time and energy. Considering the geographical conditions of the cities, it is essential to determine a smart city strategy according to the structure of each city and to transfer resources in accordance with this strategy, to determine the road map within the framework of a participatory understanding by including the local government, university, non-governmental organizations and citizens. As a matter of fact, smart city projects are shaped according to the needs of each city.

Smart city applications aimed to increase the awareness level of citizens by collecting data on the amount of water and electricity consumption of citizens and institutions, and the emission consumption arising from energy use by prioritizing digitalization so that the public resources of cities can be used effectively and efficiently. In this way, they aimed to give their citizens a sense of responsibility.

Smart city is a phenomenon that includes many sectors such as transportation, education, health, administration, public security, infrastructure, logistics, information communication technologies, ecology and the efficient consumption of resources such as building construction. In addition, these sectors have an impact on the daily lives of the city dwellers. At the same time, the smart city phenomenon progresses together with smart citizens. Smart cities can make efficient resource consumption to analyze the problems of local communities and find solutions, and have the potential to improve the quality of life of citizens by increasing the capacity of the existing infrastructure. In addition, smart cities can pave the way for commercial enterprises to develop themselves by using real-time data on the operation of services offered to citizens in cities.

For a sustainable city, it is necessary to maximize economic opportunities and minimize environmental damage (Mauricio et al., 2016, p.16). As a matter of fact, it is stated that the smart city concept is seen as an important factor for cities to monitor the transformation speed of the society and to meet the expectations and needs of the population. Digitalization is making new products and services available by developing new business models, combining information, company resources and digital technologies with new combinations. It also means

adapting technology to these resources in order to use company resources much more effectively.

3 METHODOLOGY

In order to achieve the objectives determined within the scope of this research, the description method that emphasizes describing what events, entities, institutions, groups and various areas are, and explaining the current situations, conditions and characteristics as they are, was used. In the collection of data, a survey technique, which enables data collection systematically, is used to determine the needs of individuals and measure their satisfaction levels, to reveal strong and weak elements, to identify areas open to improvement, and to measure the effects of new or existing programs / applications.

Since probability-based sampling selection was not possible, the convenience sampling method was preferred among the non-probabilistic sampling methods based on the principle of choosing any event in any suitable form (Neuman, 2013, p.320). The sample group was determined as municipal employees who designed and implemented smart city applications, citizens who benefit from these applications, and adult educators who educate citizens about smart city applications. Through these three target groups, it is considered to determine the attitudes of those who design smart city-based applications, those who use these applications, and the concept of smart city connection between smart city applications and citizens.

In this context, it is aimed to contribute to the social transformation process by using innovation, planning, technology and sociology disciplines with a multidisciplinary perspective. Theoretical and practical studies are needed to keep up with technology. In this study, together with smart city applications, how participatory citizenship can be developed is evaluated within the framework of the diffusion of innovations theory. The questionnaire created within the scope of the research was applied in the partner countries of the project called Start up for Development (Spain, Greece, Bulgaria, Poland and Turkey). In total, 505 people from five countries participated in the survey. 68 responses participated to this research from Greece (AID), 82 of them from Poland (ARID), 82 of them from Spain (FUE-UJI), 164 of them from Turkey (Kocaturk), and 109 of them from Bulgaria (RDA). The questionnaire was conducted in Greece, Poland, Spain, Turkey and Bulgaria.

Additionally, the open-ended question at the end of the questionnaire was arranged as a structured interview question. In the evaluation of these data, each participant who answered the questions was represented by the letter P (Participant). A total of 38 participants answered the open-ended question at the end of the questionnaire. These participants were coded as P1, P2, P3, ..., P37, P38.

4 FINDINGS & DISCUSSION

The first section of the research includes some demographic information about the participants. In this context, they were asked about their ages, educational backgrounds, profiles (citizen, adult educator and municipality staff) and their employment.

The majority of respondents are between 31 and 59 years old in all five countries participated the study. 67.6% of them from Greece, 64.4% of them from Poland, 59.8% of them from Spain, 44.2% of them from Turkey, and 73.4% of them from Bulgaria. The age group 18 and 30 years old followed that as the second highest ratio of the participants. 29.4% of Greek participants, 23.2% of Polish, 37.8% of Spanish, 27% of Turkish, and 19.3% of Bulgarian participants are 18-30 years old.

Participants were asked to their educational background. Most of the respondents from Greece, Poland, Spain and Bulgaria own a master or doctoral degree (respectively 51.5%, 87.8%, 48.8%, and 81.7%), while the majority of respondents from Turkey (66.3%) own a university degree. Second highest ratio for the educational background is found owning a university degree in Greece, Poland, Spain and Bulgaria (respectively 35.3%, 9.8%, 35.4%, and 12.8%), while the majority of respondents (66.3%) own a university degree in Turkey. Second highest ratio for the educational background is found owning a university degree in Greece, Poland, Spain and Bulgaria (respectively 35.3%, 9.8%, 35.4%, and 12.8%), while the majority of respondents (66.3%) own a university degree in Turkey.

Table 1: The profiles of the participants

	Greece	Poland	Spain	Turkey	Bulgaria
Profile	**Percentage (%)**				
Adult educator	35.3	22	30.5	27	34.3
Citizen	54.4	69.5	59.8	22.7	44
Municipality staff	10.3	8.5	9.8	50.3	21.1

Participants were asked to their profiles (see Table 1). Majority of the participants from Greece, Poland, Spain and Bulgaria are citizens (respectively 54.4%, 69.5%, 59.8%, 44%), while the majority of participants from Turkey (50.3%) municipality staff. It is followed by the adult educators in Greece with 35.3%, in Poland with 22%, Spain with 30.5%, Turkey with 27%, and Bulgaria with 34.3%. Municipality staff profile is the lowest ratio for the research in Greece, Poland, Spain and Bulgaria (respectively 10.3%, 8.5%, 9.8%, 21.1%), while it is the highest ratio of the participants' profile in Turkey (50.3%).

On the other hand, when respondents were asked to their employment, it was found that there is a variety of employments among them. For example, administrators, researchers, restaurant employees, etc. participated to the survey from Greece; advisers, agricultural advisers,

teachers, professors, farmers, animal technicians, students, agricultural BEng, trainers, economists, tailors, accountants, etc. participated from Poland; teachers, administrators, researchers, restaurant employees, students, municipality administrators, etc. participated from Spain; teachers, administrators, researchers, students, municipality administrators, engineers, librarians etc. participated from Turkey; mayors, doctors, teachers, layers, municipality administrators, company managers, researchers, restaurant employees, etc. and participated from Bulgaria. The results showed that many participants from each country are teachers.

4.1 ADULT EDUCATORS

The participants, who are adult aducators, were asked to familiarity with the concept of "smart city" (See Table 2).

Table 2: Familiarity with the concept of smart city

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	75	16.7	76	59.1	71.1
No	25	33.3	24	40.9	28.9
Not sure	-	50	-	-	-

Most of participants are familiar with the concept of smart city in Greece (75%), in Spain (76%) and in Bulgaria (71.1%). On the other hand, half of the Polish respondents are not sure whether they are familiar with the concept of smart city (50%), while 33.3% of them do not know the concept and only 16.7% know what a smart city is. In Turkey, almost half and half amount of people know and do not know the smart city concept. Most of Turkish participant said that they are familiar with the concept of smart city (59.1%), however, 40.9% of them do not know smart cities.

Table 3: Participation or carrying out a training/project about smart cities

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	16.7	-	16	2.3	23.7
No	83.3	100	84	97.7	76.3

The adult aducators were asked to participation or carrying out a training/project about smart cities. Table 3 clearly indicates that the majority of them did not participate or carry out a training/project about smart cities in all five countries. 83.3% of Greek participants, 100% of

Polish participants, 84% of Spanish participants, 97.7% of Turkish participants, and 76.3% of Bulgarian participants stated that they did not attend or carry out such a training/project. On the other hand, the ones who said yes were asked to define what kind of activities they participated or carried out. Greek, Spanish and Bulgarian participants, who said yes, stated that they attended or carried out European projects, while Turkish participants said STEM idea contest for kids.

Table 4: Familiarity with any initiatives their local government is facilitating

	Greece	Poland	Spain	Turkey	Bulgaria
Adult educators' answers	**Percentage (%)**				
Yes	25	5.6	28	25	48.7
No	58.3	83.3	56	45.5	25
Not sure	16.7	11.1	16	29.5	26.3

The adult educators were asked to their familiarity with any initiatives their local government is facilititating regarding smart cities. The majority of the participants from all countries indicated that they are not familiar with any initiatives their local government is facilitating regarding smart cities. As it is seen from the Table 4, 58.3% of adult educators from Greece, 83.3% of adult educators from Poland, 56% of adult educators from Spain, and 45.5% of adult educators from Turkey do not familiar with those initiatives. The percentage of being familiar with the local governments' initiatives on smart cities is higher compared to those, who are not familiar in only Bulgaria with 48.7%.

Table 5: The most important elements for adult educators

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				
Health care	91.7	94.4	92	92	68.4
Economic development	70.8	72.2	72	64.4	92.1
Public safety	58.3	55.6	60	59.8	68.4
Employment	58.3	77.8	60	-	-
Participation/Democracy	54.2	-	56	46	-
Recycling	-	61.1	-	-	55.3
Transportation	-	55.6	-	-	55.3

Social services	-	-	-	50.6	-

Adult educators were asked to the most important elements for a smart city. The five elements that the participants find most important are listed in Table 5. Health care (91.7%), economic development (70.8%), public safety (58.3%), employment (58.3%), and participation/democracy (54.2%) were found the most important five elements in Greece.

Health care (94.4%), economic development (72.2%), public safety (55.6%), employment (58.3%), recycling (61.1%), and transportation (55.6%) were found the most important elements by adult educators in Poland. Although the most important five elements listed in tables, public safety and transportation areas were found at the same amount in Poland. Therefore, they both should be taken together.

Health care (92%), economic development (72%), public safety (60%), employment (60%), and participation/democracy (56%) were found the most important five elements by adult educators in Spain.

Health care (92%), economic development (64%), public safety (59.8%), participation/democracy (46%), and social services (50.6%) were found the most important five elements by adult educators in Turkey.

Health care (68.4%), economic development (92.1%), public safety (68.4%), recycling (55.3%), and transportation (55.3%) were found the most important five elements by adult educators in Bulgaria.

To sum up, it can be clearly indicated from the Table 5 that adult educators consider that health care, economic development, and public safety are the most important elements. In all five countries, those areas were reached the highest percentage.

Table 6: What areas do you think your municipality works on well?

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				
Health care	58.3	-	56	20.7	55.8
Economic development	-	33.3	-	-	-
Public safety	50	44.4	52	-	63.2
Participation/Democracy	-	22.2	-	-	-
Recycling	50	22.2	52	52.9	-
Transportation	29.2	50	32	80.5	65.8

Social services	58.3	-	56	64.4	97.4
Energy and Utilities	-	-	-	24.5	60.5

Adult educators were asked to the most important elements they think their municipality works on well. The five elements that the participants find most important are listed in Table 6.

Health care (58.3%), public safety (50%), recycling (50%), transportation (29.2%), and social services (58.3%) were found by adult educators that the municipality works on well in Greece.

Health care (33.3%), public safety (44.4%), participation/democracy (22.2%), recycling (22.2%), and transportation (50%) were found by adult educators that the municipality works on well in Poland.

Health care (56%), public safety (52%), recycling (52%), transportation (32%), and social services (56%) were found by adult educators that the municipality works on well in Spain.

Health care (20.7%), recycling (52.9%), transportation (80.5%), social services (64.4%), and energy and utilities (24.5%) were found by adult educators that the municipality works on well in Turkey.

Health care (55.8%), public safety (63.2%), transportation (65.8%), social services (97.4%), and energy and utilities (60.5%) were found by adult educators that the municipality works on well in Bulgaria.

To sum up, it can be clearly indicated from the Table 6 that adult educators consider that transportation, health care, public safety, and social services are the most important elements. In all five countries, those areas were reached the highest percentage.

Table 7: Which of these areas do you think need to be improved?

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				
Health care	62.5	83.3	64	64.4	68.4
Economic development	87.5	61.1	76	78.2	71.1
Employment	75	72.2	76	73.6	-
Participation/Democracy	50	-	48	-	-
Recycling	-	77.8	-	59.8	73.7
Transportation	66.7	-	64	52.9	66.7
Energy and Utilities	-	61.1	-	-	65.8

Adult educators were asked to the areas they think need to be improved. The five elements that the participants find most important are listed in Table 7.

Health care (62.5%), economic development (87.5%), employment (75%), participation/democracy (50%), and transportation (66.7%) were found by adult educators the most important five elements that they think need to be improved in Greece.

Health care (83.3%), economic development (61.1%), employment (72.2%), recycling (77.8%), and energy & utilities (61.1%) were found by adult educators the most important five elements by adult educators that they think need to be improved in Poland.

Health care (64%), economic development (76%), employment (76%), participation/democracy (48%), and transportation (64%) were found by adult educators the most important five elements by adult educators that they think need to be improved in Spain.

Health care (64.4%), economic development (78.2%), employment (73.6%), recycling (79.8%), and transportation (52.9%) were found by adult educators the most important five elements by adult educators that they think need to be improved in Turkey.

Health care (68.4%), economic development (71.1%), recycling (73.7%), transportation (66.7%), and energy & utilities (65.8%) were found the most important five elements by adult educators that they think need to be improved in Bulgaria.

To sum up, it can be clearly indicated from the Table 7 that adult educators consider that health care, economic development, employment, and transportation are the most important elements to be improved. In all five countries, those areas were reached the highest percentage.

Table 8: Would you like to have a guide, tool or training on how to guide the staff of the municipalities regarding smart cities?

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	83.3	83	84	81.8	89.5
No	16.7	17	16	18.2	10.5

Adult educators were asked to whether they would like to have more information, tool or training on how to guide the staff of the municipalities regarding smart cities. 83.3% of participants from Greece, 83% of participants from Poland, 84% of participants from Spain, 81.8% of participants from Turkey, and 89.5% of participants from Bulgaria stated that they would like to have more information, tool or training on how to guide the staff of the municipalities about smart cities.

4.2 CITIZENS

The participants, who are citizens, were asked to be familiar with the concept of "smart city" (see Table 9).

Table 9: Familiarity with the concept of smart city

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	67.6	17.5	67.3	37.8	52.1
No	27	42.1	24.5	37.8	22.9
Not sure	5.4	40.4	8.2	24.3	25

Most of participants, who are citizens, are familiar with the concept of smart city in Greece (67.6%), in Spain (67.3%) and in Bulgaria (52.1%). On the other hand, the percentage of the people who are familiar with the concept of smart city and the ones are not familiar is equal with 37.8%, while the people are not sure is 24.3% in Turkey. Likewise, the minority of respondents (17.5%) said they are familiar with the smart city concept in Bulgaria, while 22.9% of them said no and 25% of them are not sure.

Table 10: Familiarity with any initiatives the local government is facilitating regarding smart city elements

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	24.3	14	26.5	26.5	39.6
No	56	56.1	57.1	57.1	22.9
Not sure	18.9	29.8	16.3	16.3	25

The majority of the respondents who are citizens are not familiar with any initiatives their local government is facilitating regarding smart city elements (See Table 10). 56% of Greek participants, 56.1% of Polish participants, 57.1% Spanish participants, and 57.1% Turkish participants indicated they are not familiar with their local government's initiatives about smart cities. The percentage of being familiar with that is higher only in Bulgaria with 39.6%.

Table 11: The most important elements for citizens

	Greece	Poland	Spain	Turkey	Bulgaria

Elements	Percentage (%)				
Health care	94.6	89.5	93.9	83.7	91.7
Economic development	56.8	54.4	53.1	72.9	87.5
Public safety	-	78.9	53.1	-	58.3
Employment	81.1	75.4	86.1	62.1	-
Recycling	-	61.4	-	-	-
Transportation	-	-	-	83.7	62.3
Social services	51.4	-	-	54	60.4
Energy and Utilities	56.8	-	55.1	-	-

Citizens were asked to the most important elements for a smart city. The five elements that the participants find most important are listed in Table 11.

Health care (94.6%), economic development (56.8%), employment (81.1%), social services (51.4%), and energy and utilities (56.8%) were found the most important five elements by citizens in Greece.

Health care (89.5%), economic development (54.4%), public safety (78.9%), employment (75.4%), and recycling (61.4%) were found the most important five elements by citizens in Poland.

Health care (93.9%), economic development (53.1%), public safety (53.1%), employment (86.1%), and energy & utilities (55.1%) were found the most important five elements by citizens in Spain.

Health care (83.7%), economic development (72.9%), employment (62.1%), transportation (83.7%), and social services (54%) were found the most important five elements by citizens in Turkey.

Health care (91.7%), economic development (87.5%), public safety (58.3%), recycling (62.3%), and transportation (60.4%) were found the most important five elements by citizens in Bulgaria.

To sum up, it can be clearly indicated from the Table 11 that citizens consider health care, economic development, and employment are the most important elements. In all five countries, those areas were reached the highest percentage.

Table 12: Which of these areas do you think your municipality works on well?

	Greece	Poland	Spain	Turkey	Bulgaria

Elements	Percentage (%)				
Health care	54.1	-	55.1	54	-
Economic development	-	24.6	-	-	64.4
Public safety	43.2	47.4	46.9	29.7	68.8
Participation/Democracy	-	24.6	-	32.4	-
Recycling	62.2	45.6	53.1	29.7	-
Transportation	64.9	28.1	61.2	54	66.7
Social services	48.6	-	49	62.1	66.7
Energy and Utilities	-	24.6	-	-	60.4

Citizens were asked to the most important elements they think their municipality works on well. The five elements that the participants find most important are listed in Table 12.

Health care (54.1%), public safety (43.2%), recycling (62.2%), transportation (64.9%), and social services (48.6%) were found the most important five elements by citizens in Greece.

Economic development (24.6%), public safety (47.4%), participation/democracy (24.6%), recycling (45.6%), transportation (28.1%) and energy & utilities (24.6%) were found the most important five elements by citizens in Poland. Although the most important five elements listed in tables, economic development and energy & utilities areas were found at the same amount in Poland. Therefore, they both should be taken together.

Health care (55.1%), public safety (46.9%), recycling (53.1%), transportation (61.2%), and social services (49%) were found the most important five elements by citizens in Spain.

Health care (54%), public safety (29.7%), participation/democracy (32.4%), recycling (29.7%), transportation (54%), and social services (62.1%) were found the most important five elements by citizens in Turkey. Although the most important five elements listed in tables, public safety and recycling areas were found at the same amount in Turkey. Therefore, they both should be taken together.

Economic development (64.4%), public safety (68.8%), transportation (66.7%), social services (66.7%), and energy & utilities (60.4%) were found the most important five elements by citizens in Bulgaria.

To sum up, it can be clearly indicated from the Table 12 that citizens consider public safety, transportation, recycling and social services are the most important elements that their mucinipality work on well. In all five countries, those areas were reached the highest percentage.

Table 13: Which of these areas do you think need to be improved?

Elements	Greece	Poland	Spain	Turkey	Bulgaria
	Percentage (%)				
Health care	67.6	84.2	67.3	54	79.2
Economic development	75.7	-	71.4	81	72.9
Public safety	-	-	-	-	60.4
Employment	91.9	66.7	87.8	91.8	-
Participation/Democracy	-	49.1	-	-	-
Transportation	45.9	66.7	46.9	70.2	54.2
Social services	-	-	-	54	54.2
Energy and Utilities	64.9	61.4	65.3	-	-

Citizens were asked to the areas they think need to be improved. The five elements that the participants find most important are listed in Table 13.

Health care (67.6%), economic development (75.7%), employment (91.9%), transportation (45.9%), and energy & utilities (64.9%) were found the most important five elements in Greece.

Health care (84.2%), employment (66.7%), participation/democracy (49.1%), transportation (66.7%), energy & utilities (61.4%) were found the most important five elements by adult educators in Poland.

Health care (67.3%), economic development (71.4%), employment (87.8%), transportation (46.9%), and energy & utilities (65.3%) were found the most important five elements by adult educators in Spain.

Health care (54%), economic development (81%), employment (91.8%), transportation (70.2%), and social services (54%) were found the most important five elements by adult educators in Turkey.

Health care (79.2%), economic development (72.9%), public safety (60.4%), transportation (54.2%), and social services (54.2%) were found the most important five elements by adult educators in Bulgaria.

To sum up, it can be clearly indicated from the Table 13 that citizens consider health care, transportation, economic development, and employment are the most important elements to be improved. In all five countries, those areas were reached the highest percentage.

4.3 MUNICIPALITY STAFF

The respondents were asked to their jobs. Greek municipality staff's jobs are municipal technician, secretary-intervention, secretary, financial controller secretary, general secretary, administrative, etc. Polish municipality staff's jobs are municipal mayor, specialist, manager, adviser, economist, coordinator, eco-adviser on ecology and climate protection, and economist. Spanish municipality staff's jobs are municipal technician, secretary-intervention, secretary, financial controller secretary, general secretary, administrative, etc. Turkish respondents' departments are section of strategy development, quality control department, department of financial affairs, disaster risk management department, cultural and social affairs department, computing department, editorial department, agricultural affairs department, law department, department of studies and projects, foreign relations department, etc. Finally, Bulgarian municipality staff's jobs are municipal mayor, municipal vice mayor, municipal technician, secretary-intervention, secretary, chief expert, general secretary, and administrative.

Table 14: Familiarity with the concept of smart city

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	100.0	14.3	100.0	53.7	60.9
No	-	42.9	-	23.2	17.4
Not sure	-	42.9	-	23.2	21.7

The participants, who are municipality staff, were asked to familiarity with the concept of "smart city" (See Table 14). All of them said that they are familiar with the concept of smart city in Greece and Spain. On the other had, The minority of the responders is familiar with the concept of smart city (14.3%), while 42.9% are not familiar and the same amount of respondents is not sure in Poland. Most of Turkish participaants are familiar with the concept of smart city (53.7%), while 23.2% of them are not familiar and 23.2% of them are not sure in Turkey. Most of Bulgarian participants are familiar with the concept of smart city (60.9%), 17.4% are not familiar and 21.7% are not sure in Bulgaria.

Table 15: Carrying on any activities in the municipality related to smart city

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	28.6	-	37.5	28	34.8
No	28.6	28.6	37.5	47.6	52.2
Not sure	42.9	71.4	25	24.4	13

The municipality staff were asked to carrying on any activities in municipality related to smart city concept. Table 15 indicates that the majority of respondents stated their municipality do not carry on such activities. Moreover, the second majority indicated that they are not sure whether their municipality carries on such activities or not. And finally, the minority of respondents stated that their municipality carries on activities related to smart cities.

Specifically, only %28 of Greek respondents, %0 of Polish respondents, 37.5% of Spanish respondents, 28% of Turkish respondents, and 34.8% of Bulgarian respondents stated that their municipalities carries on activities related to smart cities.

Table 16: Which of these areas do you think your local government works on most?

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				
Health care	-	71.4	-	36	47.8
Economic development	57.1	71.4	62.5	-	82.6
Public safety	-	-	-	-	65.2
Employment	71.4	57.1	62.5	32.4	-
Participation/Democracy	42.9	-	37.5	-	-
Recycling	-	100	-	46.8	-
Transportation	-	57.1	-	32.4	65.2
Social services	42.9	-	37.5	69.6	69.6
Energy and Utilities	57.1	57.1	50	-	-

Municipality staff were asked to the most important elements they think their local government works on most. The five elements that the participants find most important are listed in Table 16.

Economic development (57.1%), employment (71.4%), participation/democracy (42.9%), social services (42.9%), and energy & utilities (57.1%) were found by municipality staff the most important five elements that their local government work on most in Greece.

Health care (71.4%), economic development (71.4%), employment (57.1%), recycling (100%), transportation (57.1%), and energy & utilities (57.1%) were found the most important five elements by municipality staff that their local government work on most in Poland. Although the most important five elements listed in tables, employment, transportation and energy &

utilities areas were found at the same amount in Poland. Therefore, they both should be taken together.

Economic development (62.5%), employment (62.5%), participation/democracy (37.5%), social services (37.5%), and energy & utilities (50%) were found the most important five elements by municipality staff that their local government work on most in Spain.

Health care (36%), employment (32.4%), recycling (46.8%), transportation (32.4%), and social services (69.6%) were found the most important five elements by municipality staff that their local government work on most in Turkey.

Health care (47.8%), economic development (82.6%), public safety (65.2%), transportation (65.2%), and social services (69.6%) were found the most important five elements by municipality staff that their local government work on most in Bulgaria.

To sum up, it can be clearly indicated from the Table 16 that municipality staff consider economic development, employment, and social services are the most important elements that their municipalities work on. In all five countries, those areas were reached the highest percentage.

Table 17: Do you think that the citizens are aware of these works?

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	28.6	14.2	37.5	50	43.5
No	42.9	42.9	37.5	17.1	8.7
Not sure	28.6	42.9	25	32.9	47.8

The participants, who are municipality staff, were asked to their thoughts on whether the citizens are aware of the works on smart cities or not. Table 17 indicates that the majority of municipality staff are not sure about it, while the minority of them said “yes”. Specifically, 28.6% of Greek municipality staff, 14.2% of Polish participants, 37.5% of Spanish participants, 50% of Turkish participants, and 43.5% of Bulgarian participants indicated that the citizens are aware of these works.

Table 18: What areas are you planning to do more improvements?

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				
Health care	-	42.9	-	34.8	-

Economic development	71.4	42.9	62.5	40.8	60.9
Public safety	-	-	-	-	60.9
Employment	-	28.6	-	34.8	-
Participation/Democracy	42.9	-	50	-	-
Recycling	42.9	42.9	50	52.8	65.2
Transportation	-	28.6	-	39.6	78.3
Social services	42.9	-	50	60	65.2
Energy and Utilities	42.9	42.9	75	-	-

Municipality staff were asked to the areas they planned to do more improvements. The five elements that the participants find most important are listed in Table 18.

Economic development (71.4%), participation/democracy (42.9%), recycling (42.9%), social services (42.9%), and energy & utilities (42.9%) were found by the municipality staff the most important five elements that they plan to do more improvements in Greece.

Health care (42.9%), economic development (42.9%), employment (28.6%), recycling (42.9%), transportation (28.6%), and energy & utilities (42.9%) were found by the municipality staff the most important five elements that they plan to do more improvements in Poland.

Economic development (62.5%), participation/democracy (50%), recycling (50%), social services (50%), energy & utilities (75%) were found by the municipality staff the most important five elements that they plan to do more improvements in Spain.

Health care (34.8%), economic development (40.8%), employment (34.8%), recycling (52.8%), transportation (39.6%), and social services (60%) were found by the municipality staff the most important five elements that they plan to do more improvements in Turkey.

Economic development (60.9%), public safety (60.9%), recycling (65.2%), transportation (78.3%), and social services (65.2%) were found by the municipality staff the most important five elements that they plan to do more improvements in Bulgaria.

To sum up, it can be clearly indicated from the Table 18 that municipality staff consider economic development, recycling, and social services are the most important elements to do more improvements. In all five countries, those areas were reached the highest percentage.

Table 19: What areas do you want to have more information?

	Greece	Poland	Spain	Turkey	Bulgaria
Elements	**Percentage (%)**				

Health care	-	57.1	-	-	-
Economic development	71.4	100	62.5	70.8	69.6
Public safety	71.4	-	62.5	-	60.9
Employment	-	-	-	55.2	-
Participation/Democracy	71.4	-	75	-	60.9
Recycling	71.4	60.9	75	68.4	56.5
Transportation	-	57.1	-	-	65.2
Social services	-	-	-	68.4	-
Energy and Utilities	71.4	85.7	75	54	-

Municipality staff were asked to the areas they would like to have more information. The five elements that the participants find most important are listed in Table 19.

Economic development (71.4%), public safety (71.4%), participation/democracy (71.4%), recycling (71.4%), and energy & utilities (71.4%) were found by the municipality staff the most important five elements that they would like to have more information in Greece.

Health care (57.1%), economic development (100%), recycling (60.9%), transportation (57.1%), and energy & utilities (85.7%) were found by the municipality staff the most important five elements that they would like to have more information in Poland.

Economic development (62.5%), public safety (62.5%), participation/democracy (75%), recycling (75%), and energy & utilities (75%) were found by the municipality staff the most important five elements that they would like to have more information in Spain.

Economic development (70.8%), employment (55.2%), recycling (68.4%), social services (68.4%), and energy & utilities (54%) were found by the municipality staff the most important five elements that they would like to have more information in Turkey.

Economic development (69.6%), public safety (60.9%), participation/democracy (60.9%), recycling (56.5%), and transportation (65.2%) were found by the municipality staff the most important five elements that they would like to have more information in Bulgaria.

To sum up, it can be clearly indicated from the Table 19 that municipality staff consider economic development, recycling, and energy & utilities are the most important elements to have more information. In all five countries, those areas were reached the highest percentage.

Table 20: Would you like to have a guide, tool or training about how to make a town/city smart?

	Greece	Poland	Spain	Turkey	Bulgaria
Answers	**Percentage (%)**				
Yes	100	71.4	100	90.2	100
No	-	28.6	-	9.8	-

The municipality staff were asked to whether they would like to have a guide, tool or training about how to make their town/city smart. As it can be clearly seen from the Table 20 above, 100% of them indicated they would like to have such a training, guide or tool in Greece, Spain, and Bulgaria. Even though the majority of the respondents indicated similar answer in Poland and Turkey, 28% of municipality staff from Poland and 9.8% of municipality staff from Turkey indicated they do not want to have such an activity.

4.4 VIEWPOINTS OF PARTICIPANTS

According to open-ended data collected from participants, the explanations can be categorised into four catgories: needs, challenges,opportunities, and suggestions.

Needs

Respondents highlighted some needs related to the smart city concept. The answers show that adult educators, citizens and municipality staff emphasize mainly the importance of any strategical actions such as setting a vision and roadmap, identifying areas that need improvement, and so on. For example, P13 said ”a common vision and road map for smart cities should be determined”. Similarly, P14 stated “a strategic implementation plan for smart cities should be focused on including the education of citizens”.

On the other hand, some participants highlighted that preparing trainings about smart cities and being informed on smart cities are the crucial actions in this process. For example, P3 said that “there is a need for more and widespread information in this area” and P20, “I would like to give more importance to education, training, and job opportunities”. P28 also advocated that the principal action should be training of citizens by saying “there is a lot of work to be done before coming to smart cities. Smart people must first be raised. This is because, with this mentality, not only smart cities but even smart individuals cannot be raised”. Likewise, P25 said “we request more activities for the target group”. The implementation has been seen very important by participants. P34 indicated “the idea of smart cities is excellent, it requires greater interaction, openness, responsibility, bolder planning of the urban environment and life in the city, care for citizens and the environment, especially for children, I hope in the future this process happens faster, with greater desire and to attract foreign experience, as well as to create much more good conditions for investment in the field of this intelligence, which is above the level of smart city and technology, I hope for concrete solutions, fast their application and in the effectiveness of these complex measures at different levels, all with the idea of facilitating

everyday life and a much better quality of life in the urban environment of the Bulgarians". Similarly, P35 said "we need not only to write strategies, but also to implement them". Some areas of smart cities have been seen much more important than others. P26 stated "I demand better education, health, transport, and job opportunities".

However, some participants indicated that although being informed and implementation are important steps to build smart cities, monitoring what has been done so far is also an important need. For example, P30 said "it will be good to have an information campaign about smart cities and initiatives related to this project. At the same time, there should be periodic updates on how the initiatives are developing". Similarly, P32 considered "greater control is needed on the part of citizens over the spending of public funds for development, including and on international projects, so that there is an incentive to invest effectively and use the tools of smart cities".

Apart from those, some participants emphasized the importance of cooperations to build smart cities. P31 stated "the concept of "smart cities" needs to be developed ad hock to include more stakeholders from different development sectors".

Challenges

Respondents highlighted some needs related to the smart city concept. The answers show that adult educators, citizens and municipality staff emphasize the importance of some challenges about smart cities mainly related to the technical aspects. P1 stated "smart cities are a big challenge!"and P6 said "I personally deal with the protection of atmospheric air, IT and education activities, consulting, subsidies for RES, boiler replacement, the modernization. Sustainable development, ecological solution". P11 also indicated "in small towns the quality and speed of the Internet is terrible, almost impossible to telework. The free WI-FI 135 network is almost exclusively for the exclusive use of the Mayor, councilors and related people".

Some participants mentioned that their municipalities do not work in general, rather than in the case of smart cities. P38, for example, pulled attention "...to the question in which areas the municipality works well, I do not think that there is an area in which it works well". Likewise, P4 said "local government does little to inform the public about its plans. There is little public consultation and councilors do not engage in outreach work in their wards". Similarly, P10 indicated "the level of municipal cleanliness and the lack of civic-mindedness of the citizens damage the image of the city".

On the other hand, some participants highlighted not being informed about smart cities at the national level. For instance, P37 said "the village where I live and work ..., joined the European project SmartRural21 and by the end of January 2021 developed and sent its strategy for a smart village. We are familiar with the topic from March 2020. We work with our community. We participate in a number of online events at European level and learn about good practices of other villages in Europe. When discussing the CAP, there is a good view on the topic, but at the national level, the topic is weak or almost not covered".

As a result, fewer respondents cite difficulties with smart cities compared to those citing opportunities, needs, and suggestions.

Opportunities

Respondents stated potential opportunities related to the smart city concept. P20 said "the rapid advancement of technological developments can be seen as an opportunity to build smart cities more easily and quickly". Similarly, P19 advocated "rather than realizing smart city applications independently from each other by municipalities, it will be more efficient to provide diversity with local, national, and international collaborations regarding these applications. While some municipalities have very nice smart city apps, some are completely unfamiliar with these apps. Highlighting good practice examples can increase the impact". Technological developments are seen as both a goal and a tool for smart cities. P21, in the same vein, stated "smart cities are inevitable. Technological advances make this necessary".

Some participants see smart city applications as an opportunity, as all segments of the society can be included. P9 advocated that "it would be good to involve youth in entrepreneurship related to technology, green energy and sustainable economic development".

Suggestions

Participants mentioned some suggestions related to the smart city concept. Some of these suggestions are to focus more on smart city applications in specific areas, while some of them are roadmap creation, vision determination, strategic plan creation and the like, which were previously mentioned as a need. First of all, it is significant to mention that many participants see smart cities as the application of the future. For instance, P7 said "to improve is to invest in the quality of the future". In terms of the strategical actions respondents emphasize the importance of taking consideration of green side of smart cities. P12 advocated that "the smart city/rural concept must become the working methodology for the local administration". Moreover, P22 stated that "by applying more environmentally friendly and humanitarian approaches, it is necessary to reach all members of the society and produce projects that ensure their participation". P23, in a similar way, said that "municipalities, like other public institutions, should be governed by official, supra-political, policies and actions in accordance with local government legislation". Likewise, P24 advocated that "urbanization must be planned, and afforestation must be mandatory in all residences, such as fire escapes. The perimeter of the buildings is in a concrete pile. A solution must be found for this. There should be no garbage in the places, the public should be made aware, and sanctions should be imposed on those who throw garbage when necessary. These improvements should be a priority in the transition to smart cities". Additionally, P33 highlighted that "the concept of smart cities should be part of the strategic planning of the municipality of [cities] to sign an action plan and implementation as a mandatory condition for development, which should be managed consistently". P27 mentioned giving importance to some spesific areas by saying "recycling studies should be more effective".

5 CONCLUSIONS & SUGGESTIONS

In the face of population growth, rising rates of urbanization, and rapidly depleting resources, creating urban solutions with the help of developing technologies and creating sustainable cities of all sizes made it necessary to develop smart approaches and brought about the idea of "smarting the cities". The approach that includes these dynamics is named as "Smart City".

The concept stands out with its claims of inclusiveness and integrity in many newly established cities, as well as the implementations it envisages in the existing urban fabric among other city visions. Smart cities use their limited resources more effectively and efficiently, invest in information and communication technologies to produce smart solutions, save as a result of investments, thus restructure the service and life quality they provide with a holistic spatial planning process, which is left in nature. cities that reduce their carbon footprint and invest in innovation and sustainable development while doing all these.

The concept of smart city has emerged within the framework of the problematic of how technological developments and innovations can be transferred to the city on the axis of human and life by adopting many principles that are based on city visions, as well as the approaches that emerged in the 1990s. Basically, it reflects the idea that smart infrastructures create smart spaces and communities by adopting developing information and communication technologies as the most important tool, thus providing high efficiency for humans and nature. In this respect, the concept of smart city brings together with the approaches that emerged after 1990 and focused on a single point, as well as a comprehensive, participatory understanding and holistic and dense settlement elements.

The cities of the future have faced with the population growth, environmental problems, the state of urban waste, the gradual decrease of resources, as well as the changing social structure with the advancement of information technologies. This situation has provided an environment for various researches to reveal smart cities. It will be possible to claim that a sustainable smart city when the applications in line with this concept, which is perceived as predominantly technology-oriented, are integrated with social areas complementary.

Smart cities, which focus on developing information technologies, reflect the idea of creating formations that will produce solutions for both natural and built environmental problems. Although these problems may seem like a disadvantage, they can also be considered as an opportunity to come up with creative strategic solutions in the resource of rapidly developing technologies. On the other hand, the concept of smart city is related to the social and political dimension, where it is planned to include not only the use of information and communication technologies in the urban space, but also management and policy issues, and mutual cooperation in the axis of stakeholder diversity.

In this direction, there are many international organizations, think tanks and initiatives to create and shape smart city policies and contribute to the development of cities with this perspective, and their number is increasing day by day. This is why the issue of smart cities is handled under the EU Erasmus + program within the scope of this project.

According to findings of this research, some elements such as health care, transportation, employment, economic development, recycling, and social services in the smart city concept has been given much more importance than the others. It can be considered that citizens, adult educators, and even municipality staff are not familiar with the smart city concept. Nevertheless, almost they all would like to have a training on this concept. When municipality staff were asked about the areas to improve, it was found quite different with the areas adult educators and citizens indicated. Therefore, it can be stated that there should be a network between local governments and citizens in order to balance the supply and demand in terms of activities on smart cities.

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