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ANALYSIS OF SMART CITY PROJECTS IN TURKEY IN THE CONTEXT OF SMART PEOPLE AND SMART GOVERNANCE

ANÁLISE DE PROJETOS DE CIDADES INTELIGENTES NA TURQUIA NO CONTEXTO DE PESSOAS INTELIGENTES E GOVERNANÇA INTELIGENTE*

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Abstract: The objective of this study is to evaluate smart city projects in Turkey in general and assess them in the context of smart people and smart governance. In this context, the concept of smart city and its components are firstly discussed in the study, and smart people, smart governance and smart city governance are discussed. At the end of the study, some suggestions have been made for smart city applications in Turkey. Research data was collected through document analysis, which is one of the qualitative research methods. Each resource in the study was examined and analyzed regarding smart governance. According to the results obtained from the research findings; It has been determined that smart city policies in Turkey are generally top-down initiatives designed and implemented by state institutions and involving citizens in this process in the second step. Creating a truly smart city will only be possible by establishing a governance model that will bring together all the actors of cities in the process of change.

Keywords: Smart cities. Smart people. Smart governance. Turkey.

Resumo: O objetivo deste estudo é avaliar os projetos de cidades inteligentes na Turquia em geral e avaliá-los no contexto das pessoas inteligentes e da governança inteligente. Neste contexto, o conceito de cidade inteligente e seus componentes são discutidos primeiramente no estudo, e as pessoas inteligentes, a governança inteligente e a governança da cidade inteligente são discutidas. Ao final do estudo, foram feitas algumas sugestões para aplicações da cidade inteligente na Turquia. Os dados da pesquisa foram coletados através da análise de documentos, que é um dos métodos de pesquisa qualitativa. Cada recurso do estudo foi examinado e analisado com relação à governança inteligente. De acordo com os resultados obtidos a partir dos resultados da pesquisa; foi determinado que as políticas de cidades inteligentes na Turquia são geralmente iniciativas de cima para baixo projetadas e implementadas por instituições estatais e que envolvem os cidadãos neste processo na segunda etapa. A criação de uma cidade verdadeiramente

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inteligente só será possível estabelecendo um modelo de governança que reunirá todos os atores das cidades no processo de mudança.

Palavras-chave: Cidades inteligentes. Pessoas espertas. Governança inteligente. Turquia.

1. INTRODUCTION

The fact that cities are the focal point of human life and the continuous increase in urban population every day leads to various urban problems. Cities have a dynamic structure, just like people, which leads to natural development and change of cities. In addition, the problems of cities, like human problems, change with time and space and become more complex day by day. Rapid population growth, increasing air pollution, climate change, employment demands, insufficient resources to meet energy demands, inadequate infrastructure and demands for innovative urban services are the main problems facing cities due to developments in information and communication technologies. In order to cope with the problems faced by cities, traditional methods have been abandoned in favor of modern methods integrated with technology. As a result of the technological movement experienced, the concept of smart cities equipped with internet infrastructure has been implemented, taking into consideration the city and human life together, and connecting sensors and the internet to objects (Babahanoğlu et. al, 2019).

Smart cities are a policy process that has become part of the national vision of many governments in recent years, in which information and communication technologies (ICT) are used effectively to create flexible, sustainable and liveable urban areas, and to make the processes surrounding all dimensions of urban development, planning and management efficient.

The planning and implementation of how smart cities are to be understood, conceptualized, designed and maintained so that cities become more liveable through the possibilities offered by technology, requires that all actors involved in the governance mechanism of cities make decisions and work together. Therefore, smart cities involve a sophisticated process that includes the need for public participation and an active role in managing cities through ICT, public policy, redesigning cities in terms of sustainability and ensuring urban development.

It can be stated that there are three main elements on the basis of the smart city model. The first element is the "technology" which includes infrastructure, technology and networks. The second is the "human" dimension, which includes human and social capital, while the last element is the "institutional" dimension which includes the governance mechanism, policies and various regulations (Nam & Pardo, 2011). "Technology" is considered the main factor in many

definitions of smart cities, but this approach leads to an incomplete perspective in defining smart cities. Indeed, by focusing only on the technological dimension, cities turn into dead investments due to technological investments that cannot be implemented, instead of solving their chronic problems. Thus, the smart city model, whose emergence focuses on solving more effectively the difficulties encountered and experienced by the city's inhabitants, can turn into a dysfunctional application.

In the smart city model, city residents are generally assigned a role in the position of "user, tester or consumer" rather than "producer, sources of creativity and innovation" (Capdevila & Zarlenga, 2015). The attribution of such a role makes the human factor remain limited to this domain in people's minds and smart city technologies are perceived as a top-down political process. In this context, -considering the purpose and scope of smart cities- beyond a top-down political approach, it will be possible to build the smart cities of the future as a result of the creation of a model that updates itself according to the demands of citizens or users and also with the participation of citizens. The success and effectiveness of this process is directly proportional to the effective implementation of the "smart people model" and "smart governance." Therefore, in order to develop the smart city model, it is almost necessary that the smart citizen model is developed and plays an active role in all processes of the governance axis.

In this context, the objective of this study was determined as the general evaluation of smart city projects in Turkey and their evaluation in the context of smart people and smart governance. In this direction, firstly, the way the smart city concept is treated and conceptualized in the literature is examined. Then, referring to the importance of the human factor in the development of a smart city model, the concept of "smart governance", which should be at the centre of the smart city model, has been mentioned, analysing the concept of "urban intelligence", whose importance cannot be denied in the success of smart people and smart city policies. The smart city projects in Turkey were evaluated by considering them in the context of smart governance and at the end of the work, the incomplete points and the next steps were discussed.

2. LITERATURE REVIEW

2.1. Definition and Components of Smart City Concept

Smart cities have emerged in order to adapt the opportunities offered by technological developments to urban life and increase the quality of life of individuals by actively using these technologies; overcome the problems occurring in the city and create a sustainable urban structure. Therefore, the search for quick solutions to urban challenges activates countries to

make cities around the world "smarter" (Bilici & Babahanoğlu, 2018). Smart cities are the result of the modernization effort in the process of ensuring the efficiency of resource use and providing better urban services (Elvan, 2017). When reviewing the literature, it is found that there is no common definition for the description and scope of smart cities.

Most of the time, the analysis of the smart city concept is attempted using the inductive method and counting its components. The components used by the European Parliament (Mapping Smart Cities in EU) to explain smart cities are "*smart people, smart economy, smart mobility, smart life, smart governance and smart environment*" and a city needs to have at least one of the components to be classified as "smart" (Manville et al., 2014).

In this direction, smart cities are defined as *a city that performs forward-looking in the areas of economy, people, governance, mobility, environment and living in relation to life in a city, beyond the use of ICT* (Giffenger, 2007).

Table 1: Components of Smart City

Smart People	Smart Economy	Smart Mobility	Smart Life	Smart Governance	Smart Environment
High quality education	Economic efficiency	Local Accessibility	Education level	Ability to access information	Water Management
Cultural Majority	Enterprise and globalization	Green Transport Systems	Digital literacy	Public and services and utilities	Energy Resources management
Cosmopolitan view	Idea Development	Public Transport	Healthcare level	Democratic Participation	Waste Management
Openness and Cohesion	Professionally Trained Workforce	Monitoring and Control Systems	Intelligent city planning	Information Security and Risk Management	Sanitation Management
Social and Ethnic Diversity	Highly Skilled Labour	Development of Infrastructure Services	Low mortality rate	Urban planning support	
High Efficiency		Ensuring Physical Security	Cultural Development	Complaint Management	

Source: Adapted from Kar et al., 2017.

When evaluating the basic components of smart cities, it is understood that the goal is to create a "creative, sustainable, and more liveable" city. The smart city is a package where many factors, such as information and communication technologies, infrastructure, transportation and

e-governance, are brought together to increase competitiveness and administrative efficiency, as well as social inclusion. However, it must be remembered that no single component is sufficient to solve the problems of cities, and that all factors are interdependent to solve problems and ensure a sustainable city.

The most fundamental question to ask for smart cities is, "How do we define smart people in order to eliminate the deficiencies of smart city projects?" As stated by Barber (1984), the answer to this question is: smart people can be possible with a strong democracy, based on the fact that individuals and groups will have more important roles in the future. A strong democratic environment can be created through the active involvement of people in urban decision-making processes and the participation of all stakeholders in this process, i.e., the transfer of the object of the system to the subject of the system with "smart governance." In other words, "*if the cities are built only by everyone, they gain the capacity to provide something for everyone*" (Jacobs, 2011).

2.2. The Building Block of Smart Cities: Smart People

Sustainability, growth and development of smart cities are directly related to the full understanding and application of the human factor. In this context, it is important to give importance to the human factor instead of investing only in technology, and to implement smart city policies with an approach that is far from profit-oriented. In fact, the articulation of the human factor to the smart city process is due to the loss of value of the view that technological developments can completely solve problems on their own.

The Smart people model focuses on the problem of how technology platforms should be established. This process must be established in a long-term, incremental, participatory method, with a consistent perspective operating the educational and participatory public policy process (Marsh et al., 2016). For, considering the human as an auxiliary actor in the smart city development process will ensure continued failure and make the smart city model dysfunctional.

In fact, intelligent people should be understood as a person who has acquired the ability to deal with problems from a social point of view, beyond a person who has the ability to solve mathematical or logical problems. For example, if we consider transportation to be one of the most important problems of urban life, the solution to this problem can only be found with the methods developed by engineers with high IQ. The way to find sound solutions to the urban problems encountered depends on the development of the model of intelligent people and thus of "urban intelligence". Furthermore, the use of high-tech solutions and the identification of their deficiencies are possible with smart people, who are compatible with smart cities. Indeed, the

acceptance attitudes of individuals towards urban projects that individuals do not adopt, do not realize, are not involved in the solution process; and that of individuals towards projects in which they are involved as actors and have the possibility to express their ideas, will be different. In this context, it should not be forgotten that a participatory and democratic city management, which includes the city residents more effectively in the decision-making processes, will bring real success (Gürsoy & Ömürgönülşen, 2020).

It is inevitable that the technological transformation experienced will have an impact on human behavior. In the course of this transformation, it is necessary to adopt technologies to increase the sustainability of cities through smart technologies and to adapt city residents to these technologies. Although it is believed that individuals acquire a "smart" structure and will not have difficulty using and adapting technology over time with the integration of smart city technologies into the city, in experiencing this transformation at the beginning, it has been observed that masses of technology have been created in cities beyond the creation of a smart people model, when the first applications of the smart city are evaluated. Therefore, it is important to take a human-centric approach. City dwellers, who have a sense of belonging to the smart city and acting according to the smart city model, will themselves reveal the technological changes, and a more sustainable and planned change will occur.

In addition to the expectations for administration, the smart human model is expected to be able to use ICT and integrate it into its life, to transfer its gains to other actors in society and to develop its e-skills. In this respect, the first technology-centric thinking adopted in smart cities should be replaced by a "smart human" model, capable of keeping up with the times and finding solutions to the problems it faces.

Ensuring smart city governance is an important step in introducing the human-centered smart city concept. Citizen-centered smart city decision-making is an important element in the analysis of the contribution of smart city governance to the generation of public values, including economic growth (Castelnovo et al., 2015; Meijer & Bolívar, 2016). The way to put the concept of the human at the center of the smart city model and to make the human factor compatible with the smart city is to ensure that decision makers make citizen-centered decisions to enable people, who are excluded by traditional participation tools or are not included in the participation process, to increase their participation, through ICT-based applications such as social media. The inclusion of people in the smart city process can improve the planning and administration of cities with new technologies. In this direction, it becomes clear that the smart people model is important for smart cities.

The development of a human-centered model in the smart city model brings some benefits, but also brings some drawbacks. While the technological development of cities has been aided by the integration of smart city technologies into cities, the fragile characteristics of cities have also begun to quietly increase. Beyond the search for permanent solutions to the problems faced by cities, finding immediate and quick solutions with technology and not doing the urban suitability analyses of these solutions, has increased the fragility of the process. From this point of view, the good management of the governance process is an important step for cities to prevent many problems in the application of smart technologies. In fact, it can be easily stated that the establishment of a connection between smart people and smart governance depends on the compatibility of the socio-dynamic characteristics and identities of cities in the adoption of technology.

2.3. Smart Governance and Smart City Governance

Governance or smart governance has become an important tool for finding effective solutions to the problems faced in cities, as these problems are gradually taking on new dimensions. Although there are many factors behind the problems that need to be solved in terms of cities, it is easier to solve these problems with a governance mechanism, in which all stakeholders participate. However, the approach that cities can be made safer, cleaner, more prosperous, more accessible, and more innovative by considering smart cities, especially as "technology-centric", and by considering technology as the only factor to solve urban problems (Mora & Deakin, 2019) has led city dwellers to become alienated from the technologies brought to cities through huge investments. In this context, it is very important to develop the governance-based smart city model, where all stakeholders contribute to the process (Meijer, 2016).

As stated by Culpepper (2016), the success criterion for smart cities is related to their ability to include their citizens in the system. In other words, whether city residents adopt smart city policies and play an active role in implementing these technologies directly affects the success of smart city policies. In this context, leading and managing the dynamics of smart cities is only possible with the development of a smart governance model in which citizens play an active role, all city stakeholders are included in the administrative processes, and effective coordination is ensured. This approach requires a new model of administration, which includes changing and reshaping the roles of local government, central government, citizens and other social actors in the administrative mechanism, new communication structures and a new relational process. This whole process is conceptualized as "intelligent governance."

Smart governance can be defined as participation in the decision-making mechanism with the ability to act (Scholl & Alawadhi, 2016). Smart governance should be seen as the foundation of smart, open, and participatory administration. It is important to use ICT frequently to utilize these areas more effectively (Gil-Garcia et al., 2014).

The concept of smart governance can be explained through four basic components: "smart urban management", "smart decision making", "smart management" and "smart urban cooperation" (Meijer & Bolívar, 2016). The indicators that reveal the concept of smart governance in general are listed (Kim et al., 2005; Baud et al., 2015):

- Citizen-centred management, Participatory urban planning, Providing information to citizens
- Providing equality of participation, Ensuring resource efficiency
- Expanding the number and types of participants, Effective collection of the ideas of the target audience
- Effective establishment of citizens' feedback system
- Implementation of the participatory decision process to ensure citizen satisfaction
- Empowering citizens in the use of e-means
- Establishing an administration that is accountable and ensures citizen trust
- Ensuring effective social interaction
- Establishing a transparent administrative structure by improving institutional capacity
- Establishing a direct communication channel between management and citizens.

Smart city governance focuses on the emergence of an intersection point between decisions made by governments and smart city components to improve the quality of life for city dwellers. Improving the quality of the urban environment is the primary goal of smart city governance (Misuraca et al., 2012). With smart city governance, decision rights are assigned to stakeholders and their participation in decision-making processes is ensured to improve the quality of life in cities.

Today, a smart governance step is needed to process the data generated by social media users, government, business, smart sensors, and other stakeholders and to build information management capacity. Analyzing revealed data and making open management data available through digital and mobile applications is the foundation for data-driven decision making and

effective solutions. The presentation of data derived by the open management model to citizens refers to the shift directly towards e-governance with democratic and participatory practices and indirectly towards smart governance (Wijnhoven et al., 2015; Klaus, 2016). Thus, making open data accessible by introducing an open and transparent management approach is an issue that supports the governance mechanism. This open data system to be created reveals a bottom-up model with citizen-oriented management mechanisms and a decision-making method in which ICT is used effectively (Ferro et al., 2013). The involvement of key stakeholders and all actors at different stages of the policy cycle makes this stage effective.

According to Meijer (2016), smart city governance is related to the development of innovative governance regulations and the use of new technologies to deliver better outcomes and processes. Therefore, smart cities need more innovative and governance-centered management styles in order to overcome the difficulties of the traditional management model and go beyond the traditional structures of institutions. (Bolívar, 2016).

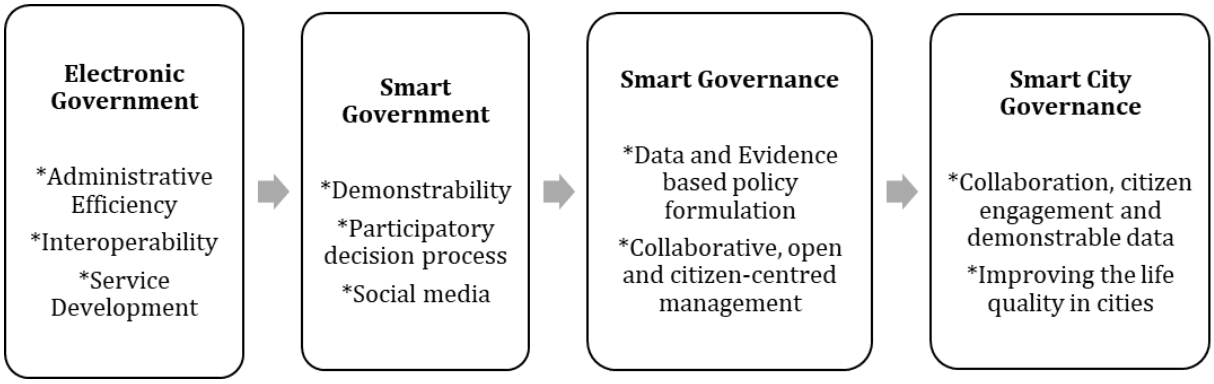

Figure 1: Change in Administrative Structure

Source: Adapted from Pereira et al., 2018.

In Figure 1, which shows the change in management structure, it is emphasized that establishing a smart governance mechanism for smart cities is linked to the success of cities in transition to the electronic system. Cities that fail to take the previous steps will have difficulties in providing the necessary dimensions of governance for smart cities.

It is important to change the management approach in order to reduce costs, increase efficiency and effectiveness, and involve stakeholders in solving the various social problems encountered. This change requires not only issues such as the economy, health services, transportation, environment, but also governance arrangements (flexible and surrounding each of these issues). The term "smart" added to the concept of administration and governance means

that administrative flexibility must be acquired in order to be effective after the constant evolution of the concept of governance. In this context, it would be wrong to perceive the concept of technology as the only transition factor between the traditional approach to administration and the governance paradigm. Social media, which allow the evolution of communication links between political representatives and citizens, are among the most important factors in the increase of situations requiring a change in administrative mechanisms (Ferro et al., 2013).

The concept of smart governance is firmly focused on government decisions to improve the quality of life in cities where several dimensions intersect. To ensure quality of life, it will be an important step to use easy-to-use technologies and based on interaction, which reveal the result of optimizing services in a way that centres the participation, leaving the traditional management tools. In this way, with a collaborative decision-making model, it allows citizens who position them in a key role to focus and create social values.

Certain basic practices should be used to ensure effective and efficient use of the concept of citizen-centred smart governance. These practices include e-citizen, e-participation, citizen-centric administration, online delivery of public services, effective use of the web and ease of access, a participatory model of e-government, effective use of feedback and complaint mechanisms, access to the e-government portal from anywhere, privacy, trust, legal protection and legal regulations (Kumar, 2015).

3. METHODOLOGY

Cities, which are constantly evolving and transforming, have acquired a different dimension with the inclusion of technology in urban life. Although the concept of smart city is considered at first glance as an approach where technology is effective, it is actually a project that uses technology as a tool and consists of many elements. However, a review of the literature shows that smart cities are generally considered as a concept where technology is effective. Considering the smart city as only the adaptation of technology to urban life and limiting the concept to such an extent leads the topic to be evaluated in a narrow framework. In fact, the success of smart city projects, as an approach that goes beyond the transfer of technology to cities, is directly related to the participation of citizens/users in the information, interest and decision-making processes. In fact, the components “smart governance” and “smart people” play a key role in the creation and sustainability of the smart city model. The objective of this study is to evaluate smart city projects in Turkey in general and assess them in the context of smart people and smart governance.

The research is a research article that starts with a review of the previous literature, draws logical meanings from them, and examines various strategy documents in order to evaluate smart city projects in Turkey in the context of smart people and smart governance. For this reason, qualitative research method was preferred in the study. The research data was collected through document analysis, which is one of the qualitative research methods. Document analysis includes the analysis of written materials containing information about the case or cases aimed to be investigated (Yıldırım & Şimşek, 2016: 189). Document analysis makes it possible to analyze documents produced within a certain period of time about a research problem or documents produced by more than one source and at different intervals on a related subject (Yıldırım & Şimşek, 2016: 140-143). Each resource in the study was examined and analyzed regarding smart governance.

4. RESULTS

4.1. Analysis of Smart City Projects in Turkey

Since the 2000s, in Turkey, it is observed that the diffusion of ICT for smart cities has been promoted and the development of policies and strategies at different levels has been initiated (Örselli & Dinçer, 2019). When these policy documents are examined, it is observed that the issue of smart city in Turkey is addressed in the context of a multi-stakeholder ecosystem and a multi-level governance model through scattered legislation.

The first high-level holistic policy in the field of smart cities in Turkey was defined in the 10th Development Plan. With the introduction of the 10th Development Plan, many sectoral and thematic strategies and policies regarding the smart city and its components were included in the overall strategic plan. Information Society Strategy and Action Plan 2015-2018, National e-Government Strategy and Action Plan 2016-2019, KENTGES Integrated Urban Development Strategy and Action Plan 2010-2023, National Cybersecurity Strategy and Action Plan 2016-2019, National Smart City Strategy and Action Plan 2017-2023, Efficiency Action Plan and the National Strategic Document and Action Plan for Intelligent Transportation Systems can be given as examples of thematic strategies related to cities are the Energy In addition to these national policies, local governments are developing many smart city strategies to improve the quality of life for citizens.

Due to the need to provide a common national strategic perspective supported by legislation between stakeholders in the field of smart cities, the "Department of Smart Cities and Geographical Technologies" was established under the "General Directorate of Geographic Information Systems" of "Ministry of Environment and Urbanization". Thus, an institutional

structure and policy ownership about smart cities has been achieved. In the "2018-2022 Strategic Plan" of the Ministry of Environment and Urbanization, "*Conducting infrastructure studies for the creation of smart cities, improving space management in cities, providing data sharing in order to develop public services and being the focal point of national geographic information*" was determined as the strategic goal. The "2020-2023 National Smart Cities Strategy and Action Plan Project" was prepared in 2019, under the policy of the Ministry of Environment and Urbanization, in order to create a national common strategic view on Smart Cities and give direction in that area. "2020-2023 National Smart Cities Strategy and Action Plan"; is Turkey's first, and the world's fourth Smart City strategy and action plan, which was shaped by the common sense and scientific viewpoint that involved central government institutions, local governments, private sector, civil society organizations and universities, and prepared a national layer (Ministry of Environment and Urbanisation, 2019).

In Turkey, in many relatively large district municipalities and especially in metropolitan municipalities, an effort is made to use new technologies in the provision of local services, such as "tax collection, public transportation, water and wastewater, city guide and tourism, public relations" (Gürsoy & Ömürgönülşen, 2020). As the administrative units closest to the public, municipal governments carrying out such activities, ensure both the prompt provision of services to citizens and enhance trust in the administration by increasing citizen satisfaction. However, there are many mobile applications produced by metropolitan municipalities for iOS and Android devices offered to citizens in Turkey. It can be seen that these apps are concentrated in transportation, city tourist guide and water-sewer works. The smart apps of metropolitan municipalities differ according to the characteristics of the city (Örselli & Dinçer, 2019).

The most condensed implementation of smart city projects in Turkey is in Istanbul. Istanbul is also the most populous city in the country. The smart applications of the Istanbul Metropolitan Municipality are organized by the Smart City Directorate, and the smart city investments are made under the "Istanbul Smart City Project". In this context, the most comprehensive smart city project in Turkey was launched in 2016, completed in 2017, and practices have been carried out under the project since 2018 (Ministry of Environment and Urbanization, 2020). The main topics of Istanbul smart city applications are carried out under eight functional fields: "Mobility, Environment, Energy, Governance, Economy, Life, People and Security". Currently, examples of smart city applications in Istanbul may be given such as "Air Quality Monitoring Centre, Environmental Control Centre, Traffic Signalling Systems, iTaxi Management System, IoT Taxi Hat, New Istanbul Airport, Başakşehir Living Lab, İstanbul

Electronic Inspection System (EDS), Mobile EDS, Smart Recycling Containers, Energy Generation from Garbage Gas, Smart Park Management, White Table, Smart Library".

In Ankara, the second most populous city and capital of Turkey, smart projects such as the "Wonderland Smart Park Project, Integrated Solid Waste Management System, Smart Signage, Metropolitan Municipality Mobile Application, Electric Energy Tracking System, Zero Waste Program, Smart Transportation Systems, and Smart Water Management Systems" have been implemented.

Konya, the largest city in Turkey in terms of area, is another example of a successful smart city application in the country. Among the smart applications in Konya are the smart applications such as "Central Traffic Operating System, Smart Public Transportation System, Elkart, Bicycle Roads and Smart Bicycle System, Park place Find, E-Pattern, Environmental Management Information System Centre, Konya Mobile App, Mevlana and Mesnevi Mobile App, Konya Science Centre".

Many smart city applications have been realized in Antalya, which hosts millions of tourists from around the world every year. These smart applications include "city information screens (KIOSKs), audible walking project, smart lighting system, smart irrigation system, chronic patient monitoring, smart city management platform, solar power plants in agriculture."

Smart city projects implemented in other cities in Turkey include projects such as "smart intersections, ambulance priority, smart stops, smart irrigation, QR code door numbers, smart bike stops, smart traffic signaling, earthmoving vehicle tracking, smart grid circuit and renewable energy systems, smart coordination and care center for the elderly, smart meters, city information systems, cemetery information system."

5. DISCUSSION

When evaluating smart city projects in Turkey, it can be seen that smart applications are largely similar to each other, those implemented in cities at the first stage are mostly condensed in specific areas (transportation, water and sanitation, etc.). On the other hand, it can be said that smart city efforts in Turkey are quite recent and have not yet reached the desired level. In other words, it can be articulated that in some cities, only investments are made on smart technologies, superficial technological applications are called smart cities, and all new technological applications are gathered under the umbrella of smart (Şahin, 2017).

In addition, although citizen participation and governance are emphasized in policy and strategy documents in the implementation of smart city studies, which are technology-oriented

rather than citizen-oriented, there is evidence that citizen participation and governance are lacking and that projects are developed from the top down. As a result, the minimal level of citizen participation in the policy-making process at the local level leads up to the end result as the most of the smart city projects implemented by local governments remain as technology investments. This situation is the major weakness of smart city projects in Turkey.

For cities to acquire a smart vision and to transform themselves in this direction takes a long time. However, the intention of cities to increase their standard of living by overcoming the challenges is driving them towards smart technologies. With this, innovative applications created through pure technological understanding will not make cities smart and it is only possible for cities to complete the transformation process with the participation of their stakeholders.

With the adoption of strategies and adaptation of information and communication technologies to cities, some smart applications have been implemented in Turkey However, one of the major shortcomings is the lack of participation opportunities for the effective inclusion of social actors in the system during the construction of smart cities. Taking the successful smart governance models in the world as an example, there is no doubt that the adoption of smart applications in Turkey will accelerate the smart city process and help the city residents to adopt the process.

6. CONCLUSIONS

Policy-making institutions and city governments in cities have begun to frequently use the concept of smart cities to provide efficient and innovative services and bring technology closer to citizens. However, while the primary role of smart cities is to provide solutions to the problems faced by cities, their focus on technology and technocracy is the main point of criticism of the smart city approach.

The smart city concept is related to the learning capacity of the city's residents and institutions. The fact that joint decisions can be made by addressing the relationships between local units in solving common problems, and the declaration of citizens of their intention to adopt these decisions and implement them on an ongoing basis; show that the basic approach of the smart city is realized. Policies that identify, identify and support the initiatives of the city's residents will reinforce the smart city policies that are being attempted to be implemented from the top down, and ensure the development of consistent and ongoing smart city applications. Having local government bodies and actors act in accordance with the governance approach by

assuming the responsibilities necessary for the city to be smart along the common stakeholder axis will enable cities to effectively solve problems.

Smart cities require the establishment of a management structure that aims to improve the quality of life of citizens by using technology, provide better and more efficient public services, develop democratic mechanisms, and increase their management capacity by targeting the development of participation means. At this stage, it is important that those who manage and are managed comply with the technology and participate in the management/decision mechanism cooperatively. Especially in smart city policies to be put into practice by city administrators, creating an administrative structure that values the opinions of city residents and uses them in the implementation phase ensures the establishment of smart people and smart governance that strengthen the technology factor for a smart city and the construction of a solid smart city model.

In the context of the smart city in Turkey, smart policy implementation refers to initiatives that are generally designed and implemented from the top down by government agencies, involving citizens in the second step of this process. The creation of a fully smart city will only be possible by establishing a governance model that will bring all city stakeholders together in the process of change.

When evaluating the smart city model of governance practices in Turkey, it is important to take certain steps in order to experience a transition from a city that makes technological investments to a "smart city" model by activating smart governance:

- Priorities for smart city investments must be planned before they are made. The performance, effectiveness and efficiency of smart city applications must be measured. Only technology investments will result in fundamental deficiencies. Data acquisition and analysis are at the heart of the smart city. However, additional efforts are needed to obtain and examine data, especially in the case of Turkey. Incorporating more governance dimensions into data collection and analysis will facilitate the process.
- Citizen participation is a very important step in the process of using smart city resources. Smart cities cannot reflect the characteristics intended by the smart city approach with a vision based on technologies alone. To avoid this, laboratory environments should be established for smart cities. This should be used as an advantage in the urban transformation processes that many cities are experiencing. Furthermore, since the process of creating smart cities includes governance through a multi-stakeholder process that requires costs and coordination, a legal infrastructure should also be established. In addition, it would be beneficial to increase joint efforts in areas where the

private sector is active, as smart cities are a formation that also increases the brand value of cities.

- The role of e-Municipality applications and social media in ensuring citizen participation is gradually increasing. The use of these and other similar web-based tools for smart city applications will be very helpful in increasing citizen participation and improving governance.

The opportunities such as open budget, open means of participation in decisions, openness to information, which are effective for citizen participation will accelerate the smart city process. Ensuring the coordinated integration of areas from education to culture, from health to the environment and not considering the smart city process as pure technology and getting rid of the idea that smart technologies are limited only to the field of transportation will be very effective in the development of smart city strategies and creating a more permanent smart city model. While the foundation of smart cities is thought to be smart technologies, only the production and ongoing development of smart technologies will ensure that information is not limited to one domain, and thus that technology manufacturers will be effective in this process. However, the development of a technology and the search for solutions to problems will only be possible if the consumer embraces smart technologies on the axis of supply and demand balance and believes that these technologies can find solutions to the main problems they face in the city.

"Citylabs" are an important technological dimension of smart cities. Indeed, through "citylabs", which are the joint result of the technological dimension and the governance of smart cities, cities are transformed into a smart city laboratory, and into a system in which the private sector is included in the process by identifying the shortcomings of cities and the problems that need to be addressed by citizens and administrators, in order to solve these problems. In this regard, in light of examples such as London, Barcelona and Amsterdam, which effectively apply this practice, it is very important to make smart cities where smart governance mechanisms, which are an important dimension of smart cities, are used effectively and where city residents are more participatory. In this context, creating an eCity profile that is aware of and familiar with smart city technologies and is inclined to use them is important to reveal a successful model that makes the components of the smart city fully functional.

As a result, the transformation process that makes a city "smart" can be achieved by taking into account its urban reality and complexity. Beyond the acceptance of citizens as users, owners or consumers of technologies, local governments that can identify, promote, integrate citizens' initiatives and realize their participation, will contribute to the strengthening and creation of smart city projects.

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