



**T.R. MINISTRY OF
ENVIRONMENT AND URBANIZATION**

2020-2023 NATIONAL SMART CITIES STRATEGY AND ACTION PLAN

30 / 07 / 2019



EXECUTIVE SUMMARY

The technological advancements and innovative approaches, with their ever-growing number and quality, has a powerful transformative effect on the urban life. Named as Smart City, this transformation aims at enabling the city to manage itself through futuristic projections based on data and expertise without the need of human intervention by means of establishing powerful networks between the assets living in the city and ensuring the interoperability with the collaboration of the whole ecosystem stakeholders. Smart City provides sustainable development, competitive power, along with the acquisitions in environmental sustainability thanks to its ability to turn the information it provides into economic, social and environmental advantages. With a similar motivation in our country, 2020-2023 National Smart Cities Strategy and Action Plan has been drawn up with the aim to gain the ability of interoperability by means of bringing an integrated perspective into Smart City policies on a national level, and to ensure that the investments are utilized in the correct projects and activities by the competent and producing Smart City Ecosystem by means of prioritizing the investments that meet the requirements of the designated policies. With an integrated strategy address the needs of the stakeholders, paying regard to the current state by attaching importance to the experiences gained, and evaluating the international applications, it is aimed

- To set a mutual vision and a roadmap,
- To monitor and evaluate with a systematic and open governance process,
- To accommodate new conditions,
- To develop Smart City maturity with a common perspective in the cities.

2020-2023 National Smart Cities Strategy and Action Plan is the first Smart City strategy and action plan, and the fourth in the World, drawn up on a national level, and which is shaped with a common sense and scientific perspective, in which the central government institutions and organizations, local governments, private sector, nongovernmental organizations and universities. Within the scope of the studies & works for 10 months, the high level policy documents and related legislations have been reviewed, as well as arranging workshops and focus group meetings, taking and analyzing well-attended surveys with local governments. While establishing the National Smart City Strategy, the requirements and best applications within the scope of Smart City maturity models, along with the applications from other countries, international developments, technological innovations and trends have been taken into consideration in line with the opportunities, conditions, needs and priorities that are specific to Turkey. 2020-2023 National Smart Cities Strategy and Action Plan will give acceleration to the social, economic and environmental development of Turkey by addressing Smart City transformation needs. Focusing on “**Effective and Sustainable Smart City Governance**” and “**Competent and Producing Smart City Ecosystem**”, this strategy established its vision as “**Livable and Sustainable Cities that Add Value to Life**”. In line with this vision, 4 strategic goals, 9 objectives and 40 actions have been determined. Successful implementation of 2020-2023 National Smart Cities Strategy and Action Plan will only be possible with the active participation of and support from the whole ecosystem stakeholders.



1 INTRODUCTION

1.1 WHAT IS SMART CITY

The need to compete in the structure of an economy as globally connected to each other, along with the need to ensure the sustainability of the residents' welfare prompts the countries and cities to consider new technologies and innovative approaches. This motivation, as well as the complexity and speed of change brought in by these technologies and approaches, imposes pressure on the ecosystem stakeholders that develop traditional silo solutions, thus introducing the need to handle urban solutions integrally and systematically. For meeting this need, Smart City approach comes as a solution, with the assurance that the expectations are met and the problems are solved with the future projections based on the data and specialty of interoperable systems developed through the inter-stakeholder collaboration. More clearly, what is aimed with Smart City is:

- To convert the existing and future expectations & problems of the city into a triggering power in all the spaces and systems of the city,
- To approach the physical, social and digital planning all together,
- To predict, identify and overcome the emerging challenges under a systematic, agile and sustainable manner, and
- To reveal the integrated service delivery and the potential for generating innovations by means of ensuring the interaction between the enterprise structures in the city.

Describing the term "Smart City" is the primary step in terms of addressing Smart City studies. In the preparatory studies for 2020-2023 National Smart Cities Strategy and Action Plan, the definitions of Smart City that are within various studies as oriented to this need have been reviewed. It has been understood that there is no common definition of the term "Smart City", and that this definition is formed as per the needs for which the required solutions are sought. Within the scope of 2020-2023 National Smart Cities Strategy and Action Plan, the term "**Smart City**" has been described as follows:

"More livable and sustainable cities that are brought into being with the inter-stakeholder collaboration, utilizing emerging technologies and innovative approaches, providing justification based on data and specialty, and producing solutions adding value to our lives by predicting the future problems and needs"

As a complex concept, the term "Smart City" needs to be addressed structurally. Not only are there various definitions of this term, there are also various approaches within the scope of standard, maturity assessment model, index and architecture studies concerning the conceptual structure of Smart City. These various approaches concerning the structure of Smart City have been reviewed, and Smart City Structure has been addressed under two main headings within the scope of 2020-2023 National Smart Cities Strategy and Action Plan, which are "Smart City Management" and "Smart City Applications".

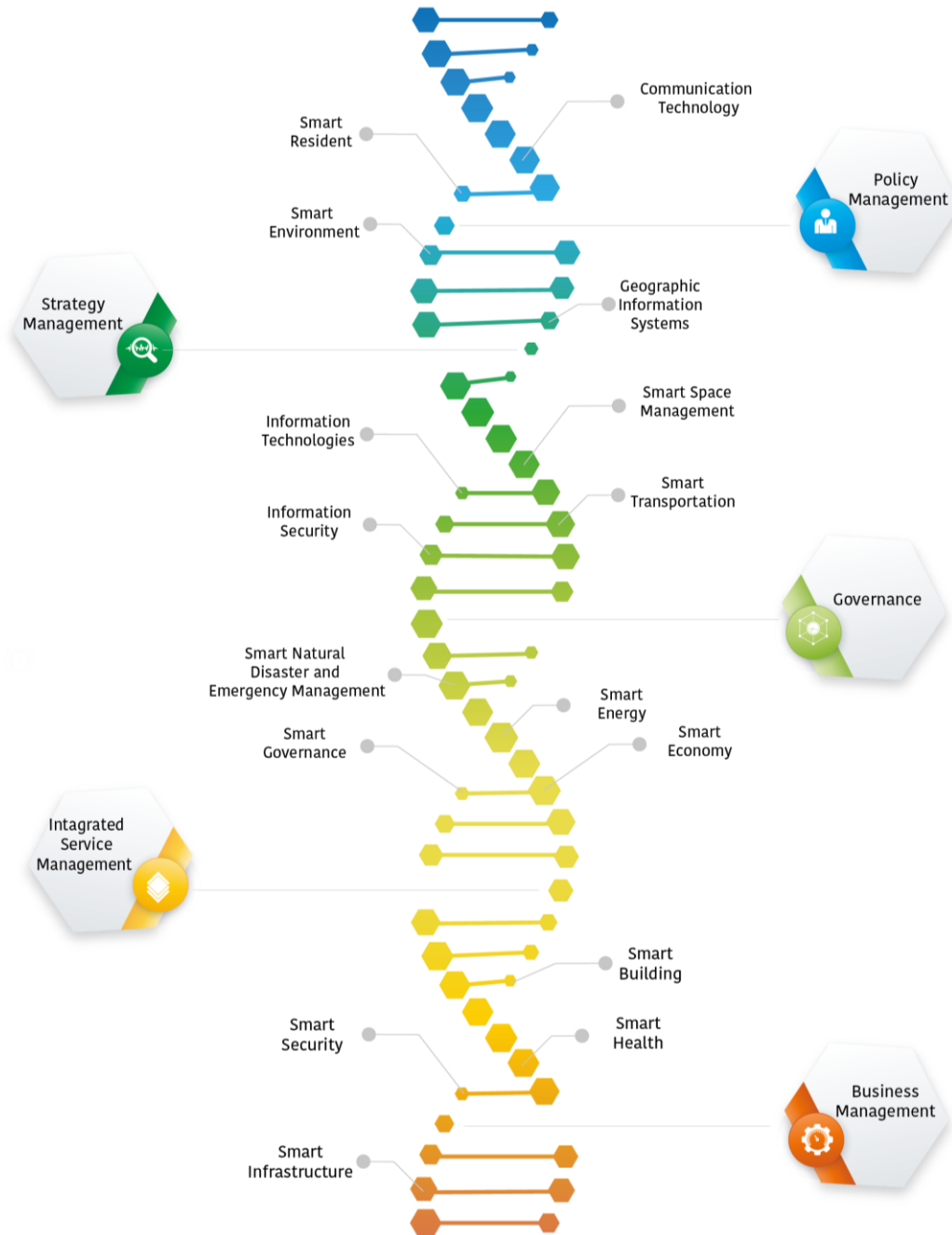


Figure 1. 2020-2023 National Smart Cities Strategy and Action Plan Smart City Structure



The competences of Smart City Management and Smart City Applications included in Smart City Structure, along with the Smart City Components defined under these competences are as follows:

- **Smart City Management**

- **Governance:** These are the activities aimed at strengthening, enabling and sustaining city-wide leadership among the stakeholders deemed required in Smart Cities field, as well as finding effective ways to ensure sustainability.
- **Strategy Management:** These are the activities which are aimed at developing Smart City Strategies and transforming them into roadmaps as the guide for the city and ensuring the implementation of these applications based on this perspective.
- **Policy Management:** These are the activities aiming at determining and implementing the policies that set out the principles for guiding the following headings in the Smart City field.
- **Integrated Service Management:** These are the activities aimed at improving the maturity and the providing of city services in an integrated way by using Smart City solutions through inclusive channels in interaction with each other.
- **Business Management:** These are the activities related to governance, planning and decision-making in the business layer to provide city services using Smart City solutions.

- **Smart City Applications**

- **Smart Environment** can be defined as the management of waste, air, water, soil, climate change management with the support of Information and Communication Technologies, ensuring the sustainability of the environment and nature by preserving the natural assets of the city and taking environmental management into consideration through planning of green city.
- **Smart Security** is a collection of functions for measuring and ensuring the effectiveness of urban security, designed to protect citizens and provide crisis management for threats to existing security in cities by means of using technology.
- **Smart Resident** is an individual who has a high level of awareness, participation and creativity, a lifelong learner, having inentered Information And Communication Technologies into his/her life, as well as being the main element of human and social capital and the focus of city life. The headings "Social Infrastructure, Cultural Interaction and Dependency" are covered within Smart Residents component. Social Infrastructure are the activities and services aimed at improving the quality of life of the individual and society such as education, health, culture, tourism, arts, sports and social aids.
- **Smart Building** comprises of systems aiming to improve the quality of life by rationally and technologically approaching basic needs such as housing and accommodation quality, building security measures, building air conditioning and energy systems for all buildings in a city.
- **Smart Economy** can be defined as the micro and macro dimensions of a city and the economic inputs, outputs and activities that are handled within the framework of smart industries. While facing the increasing consumption factors in each and every field, it aims to use existing resources efficiently and to develop measures for increasing consumption, as well as improving the quality of life. Competitiveness, brand value and sharing economy are the prominent concepts in this context.



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- **Smart Spatial Management** refers to the fact that cities can be resilient against natural disasters such as earthquakes, floods, landslides that may cause loss of life and property, in order to be socially, culturally and economically viable and sustainable and develop in accordance with the principles of urbanization.
 - **Smart Health** is the collection of applications and services that aims to increase the quality of life, improve health services, increase the awareness of individuals about their health, and provides a smart analysis of health data.
 - **Smart Governance** refers to governance that enables faster, more accurate and effective decision making, unlike traditional public administration methods, with transparency, participation and accountability principles in public administration processes such as analysis, planning, implementation and policy making.
 - **Information Technologies** enable the production, collection, processing, having processed and sharing of information (voice, data, text, image, etc.) with the support of technology. Within the scope of Smart City, Information Technologies supports many services such as city administration, energy, transportation and infrastructure horizontally.
 - **Smart Transportation** includes sustainable, secure and interconnected and integrated transportation systems, including tram, bus, train, subway, car, sea and air transport, bikes and pedestrians, where one or more modes of transportation is/are used.
 - **Smart Energy** is the network power management supported with highly efficient and ever-increasingly sustainably power sources in terms of energy and sources, ensuring saving on cost and energy, based on inner vision along with the integrated and flexible resource systems for strategic planning, having public value and based on innovative approaches.
 - **Communication Technologies** are the infrastructure, technology, standards and equipment related to the transmission of information. Within the scope of Smart City, Communication Technologies provides horizontal support to many services such as city administration, energy, transportation and infrastructure.
 - **Information Security** is the protection of information by applying the risk management process in line with the elements of confidentiality, integrity and accessibility. Within the scope of Information Security, it is aimed to protect and address technology, systems and infrastructures (network, software, device, data, etc.) in total and to be prepared for future threats.
 - **Smart Infrastructure** are the systems transmitting, analyzing, measuring, monitoring the data collected through the sensors used within the scope of Smart Environment, Smart Transportation and Communication Technologies, well-responding to the user requirements and environmental changes, as well as constituting public value.
 - **Natural Disaster and Emergency Management** is the collection of applications and systems that cover the process of returning to normal life, which can reduce the damages that may be faced by taking measures, ensure the preparedness for disaster and emergencies, analyze the disaster and emergency data Smartly and intervene when an event occurs.
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- o **Geographic Information Systems** are the collection of hardware, software, human resources, standards and methods required for the production, supply, storage, processing, management, valuation, analysis, sharing, visualization, providing and keeping up-to-date of geographic data, having spatial interactions with a number of sectors.

1.2 GENERAL VIEW OF SMART CITY IN TURKEY

The first policy on Smart Cities in Turkey is included in the National Science and Technology Policies 2003-2023 Strategy Document and it has become a high level policy with 10th Development Plan. For the purpose of handling the policies taking part in thematic and institutional strategies in this field together, it is included in 2015 Investment Program as an investment field. 2020-2023 National Smart Cities Strategy and action Plan is prepared for establishing a national common strategy perspective and directing our country in this field, under the policy ownership of the General Directorate of Geographic Information Systems of the Ministry of Environment and Urbanization. This field has gained a strong political leadership under Presidency with the task of making researches on smart urbanization among the duties and powers of the Local Government Policies Board established under the new Presidential System and Presidency.

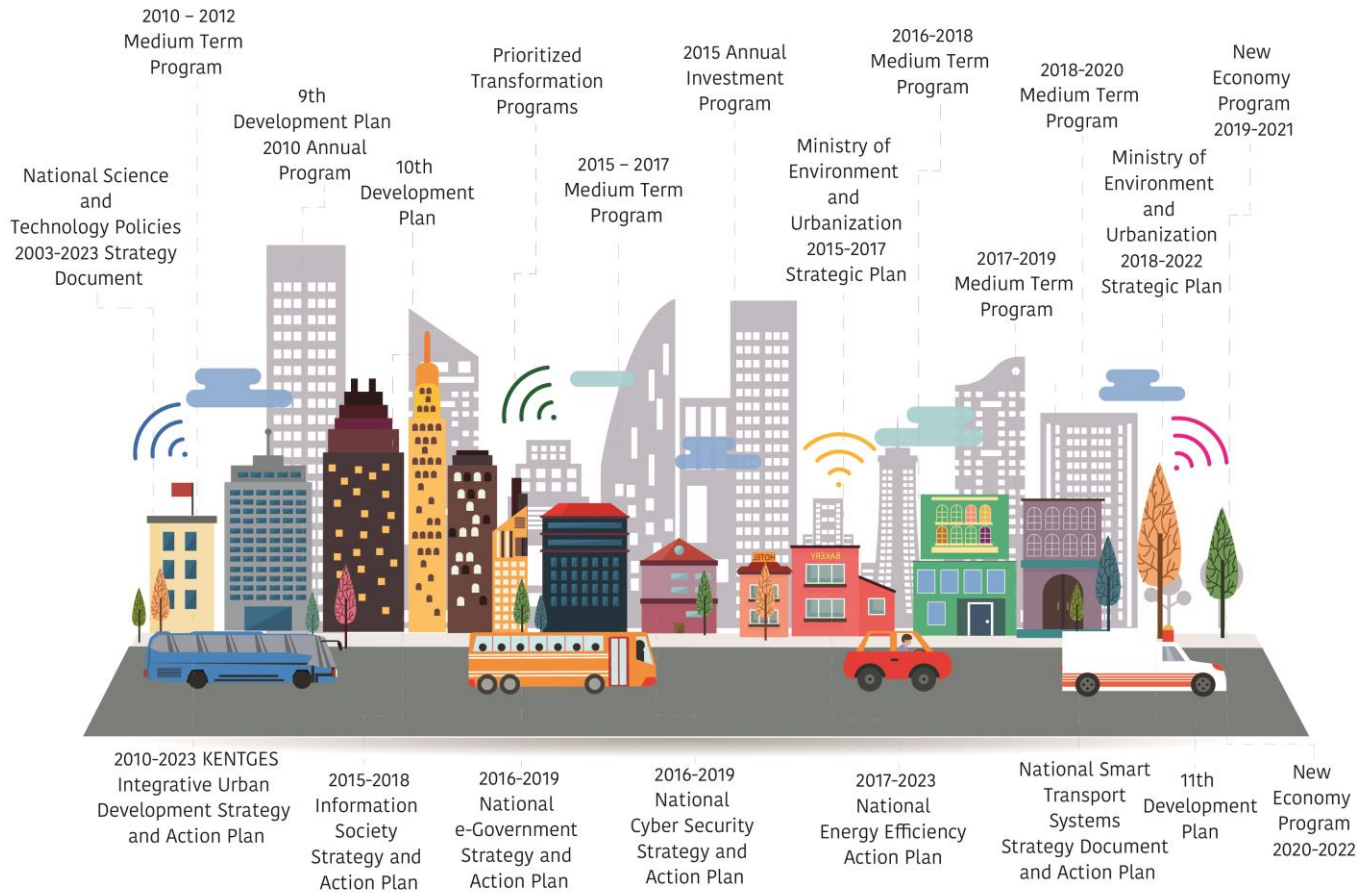


Figure 2. Top Level Policies and Thematic Strategies for Smart Cities



The stakeholders in Smart Cities field are distributed within a wide range. The ecosystem approach and the governance mechanism that will implement this approach will be a vital step in establishing the agile and organic collaboration and coordination among Smart City stakeholders, as well as identifying the responsible stakeholder organizations involved in this mechanism. This multi-stakeholder ecosystem is addressed through a distributed legislation within the scope of a multi-layered governance model. The mutual strategic perspective to be offered will not only ensure the coordination of Smart City studies, but also the sustainability of the Smart City Governance Mechanism as deemed required for the implementation of policies, and accordingly the stakeholder organizations assigned in this mechanism.

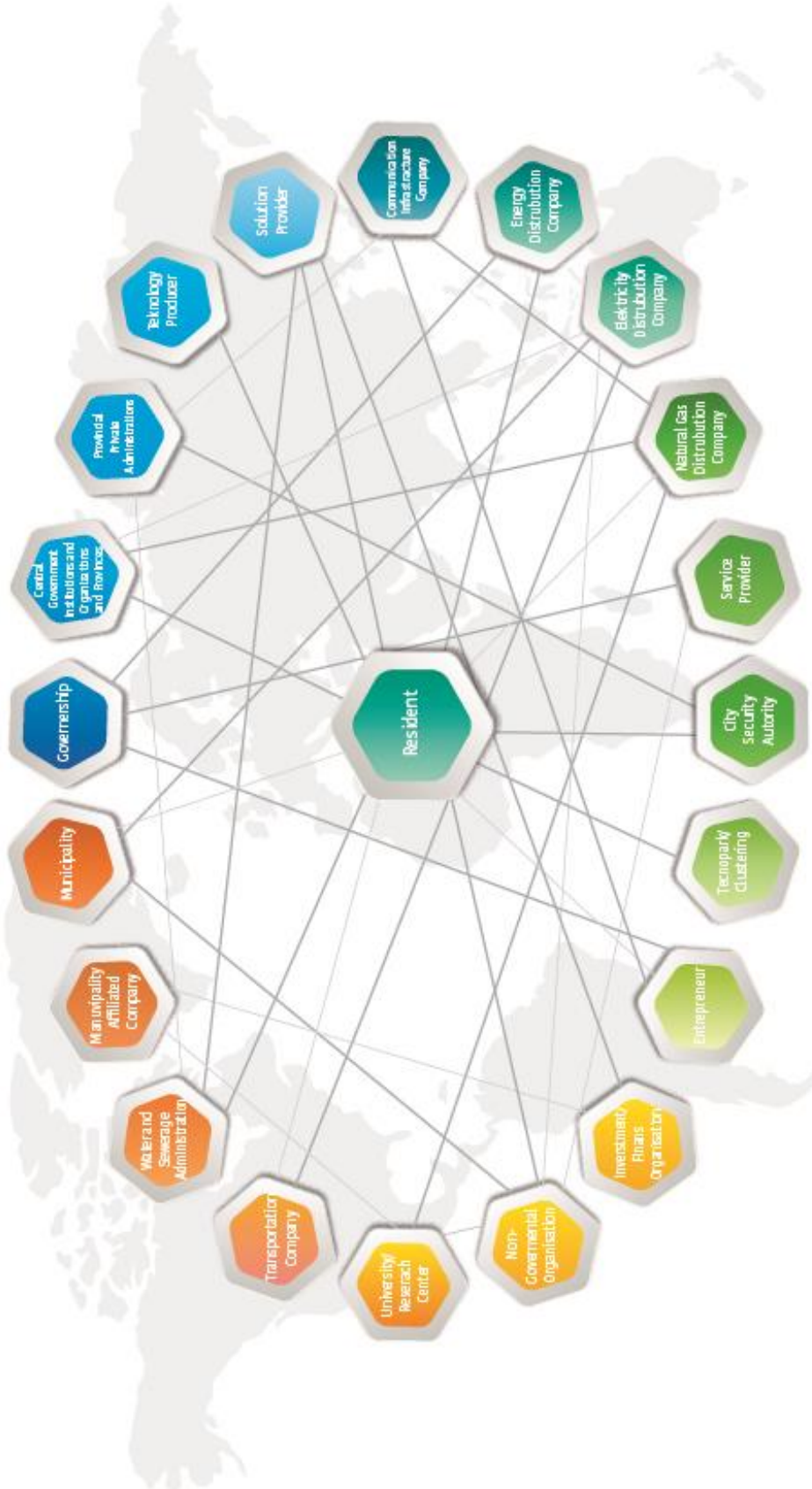


Figure 3. Smart City Ecosystem and Stakeholders



1.3 2020-2023 NATIONAL SMART CITIES STRATEGY AND ACTION PLAN

With 2020-2023 National Smart Cities Strategy and Action Plan, Turkey's Smart City vision, core values, strategic goals and objectives are defined, designating the priority actions to achieve Turkey's 2020-2023 term Smart City strategy and objectives.

2020-2023 National Smart Cities Strategy and Action Plan has been built on a multi-level structure, including national and local layer, in a manner covering the entire Smart City geographic structure of Turkey and country's transformation, by means of taking into account the needs created by different dynamics such as socioeconomic status. In order to implement Smart City transformation, policies that need to be handled in an integrated way with a common approach and understanding at national level are located at national layer and policies that are shaped according to different city dynamics.

The definition of the city mentioned within the scope of the 2020-2023 National Smart Cities Strategy and Action Plan is limited to the urban areas of the settlements (provinces, districts) with a population of 50,000 or more. In addition, urban areas with a population of 50,000 or more periodically active in sectors such as agriculture, industry, tourism and services are considered as cities. It is also possible for urban areas with a population below 50,000 but in need of Smart City Solutions to fulfill their duties and responsibilities in the 2020-2023 National Smart Cities Strategy and Action Plan in line with their needs and capacities. However, these policies have been handled on a provincial basis due to the need to address policies such as information security, Smart City Architecture and open data within the scope of Strategy and Action Plan within the scope of common assets and activities. In this context, out of the defined city concept, the said policies are planned to cover the centers and districts on provincial basis.

2020-2023 National Smart Cities Strategy and Action Plan is the first Smart City Strategy and Action plan in Turkey and the 4th across the world adapting to ecosystem needs on a systematic, structural and integrated vision, selecting and prioritizing to direct investment and resources, using stakeholder maturity model, considering the participation of stakeholders, along with the common policy documents and thematic strategies, being compatible with common intelligence, rendered as an innovative approach, which takes into account social exclusion and digital divide, built with the citizen experience and vision, as well as being aware of new technologies, considering the cost-benefit balance, foreseeing the impact on social, economic and cultural values, involving the monitoring and evaluation mechanism, and adapting to dynamic conditions, through being supported by incentive mechanisms, which pioneer the application and guidance mechanisms specific to Turkey.

The following activities were carried out during the preparation of 2020-2023 National Smart Cities Strategy and Action Plan: Current State Analysis, Preparation of Strategy and Action Plan and Development of Monitoring and Maturity Assessment Model and System:



Figure 4. Project Phases

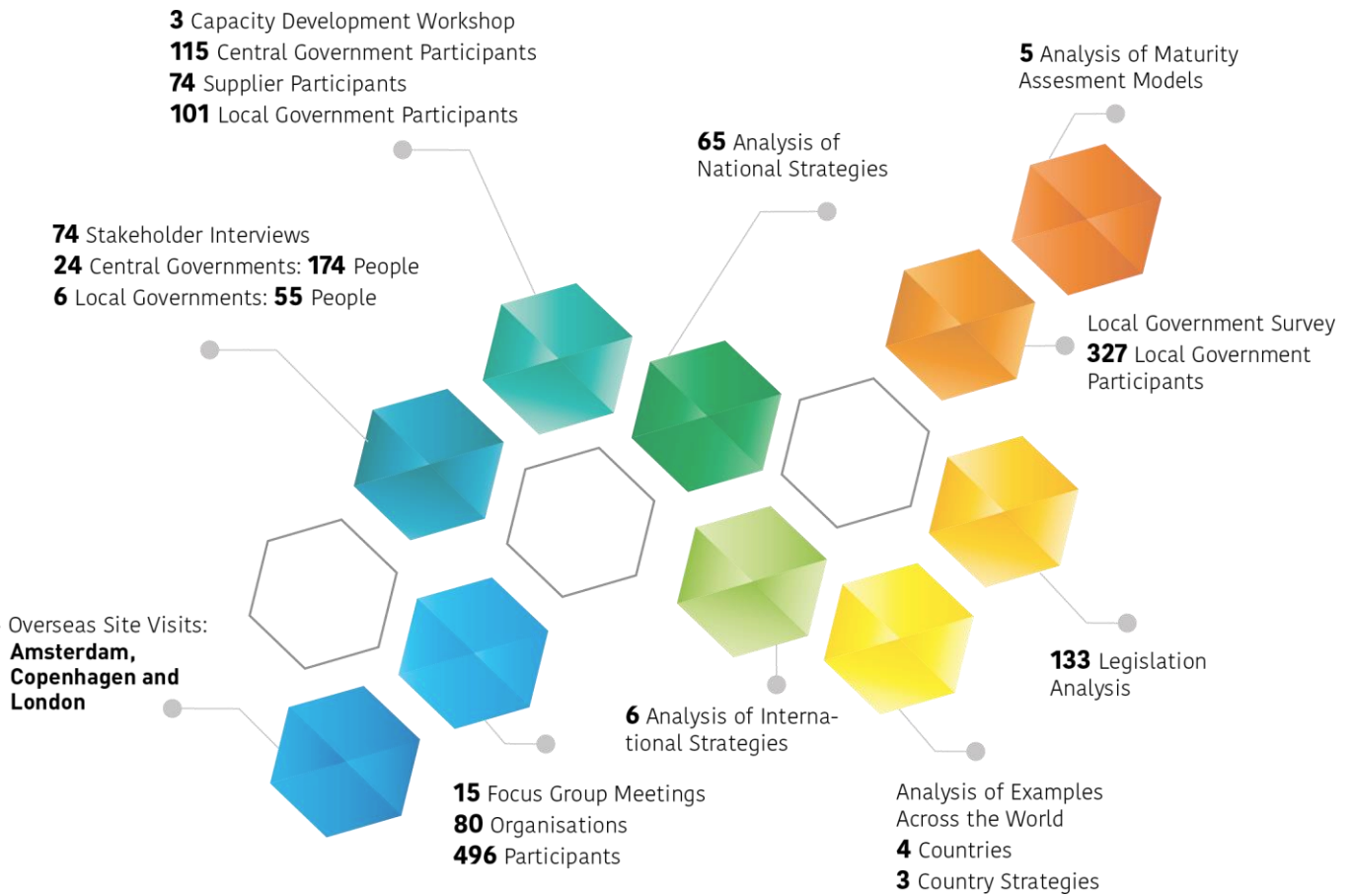


Figure 5. Current State Analysis Summarized Information

Following the Current state Analysis, 5183 findings were obtained. It was ensured that the findings obtained as a result of the analyses carried out within the scope of Current state Analysis are grouped on the basis of components in the current state and Target View breakdown.

In the process of preparing Strategy and Action Plan, deductive and inductive methods were used in the studies to determine the strategic goals, objectives and actions. The suggested (candidate) strategic goals, objectives and actions were identified by using the deductive method, which was classified as Target View. In the study carried out by the inductive method, the current state assessments were transformed into rationales and the candidate actions, objectives and strategic goals were defined based on the rationale.



The studies obtained by inductive and deductive method were brought together and the draft 2020-2023 National Smart Cities Strategy and Action Plan was drawn up. At this stage, ecosystem stakeholders participated in Smart City Strategy Development Capacity Building Workshop, which was organized with the participation of 162 participants from 49 different institutions. The draft was presented and updated for the opinion of stakeholders participating in Smart City Ecosystem Strategic Perspective Workshop organized with the participation of 162 participants from 52 different institutions. Twelve separate review meetings were held with the institutions identified as responsible and related for the actions towards Smart City Components to evaluate these actions and get their opinions. A total of 15 different institutions attended to these meetings. Total of 100 participants were ensured to participate on an individual basis. This Smart City Strategy adaptation of the work of Smart City Projects carried out by ecosystem stakeholders together with the activities, and assessing the impact of the implementation strategy and specific to Turkey on Smart City in order to provide a common language and structure for the verification, the Maturity Assessment Model was developed, and then the model was applied on two selected local governments.

The actions in the 2020-2023 National Smart Cities Strategy and Action Plan will be implemented by the responsible and related institutions / organizations and other stakeholders in coordination with the Ministry of Environment and Urbanization in accordance with the implementation plan drawn up. Monitoring and Maturity Assessment activities will be carried out in line with Smart Cities Strategy and Action Plan Monitoring and Evaluation Model. The changes that will occur after the implementation of the action plan will be addressed within the scope of change management and the action plan will be in a dynamic structure updated according to today's conditions.

2020-2023 Smart Cities Information Sharing Portal (www.akilisehirler.gov.tr), which was launched within the scope of the National Smart Cities Strategy and Action Plan, will be in use to provide information and experience sharing among ecosystem stakeholders during the strategy period.

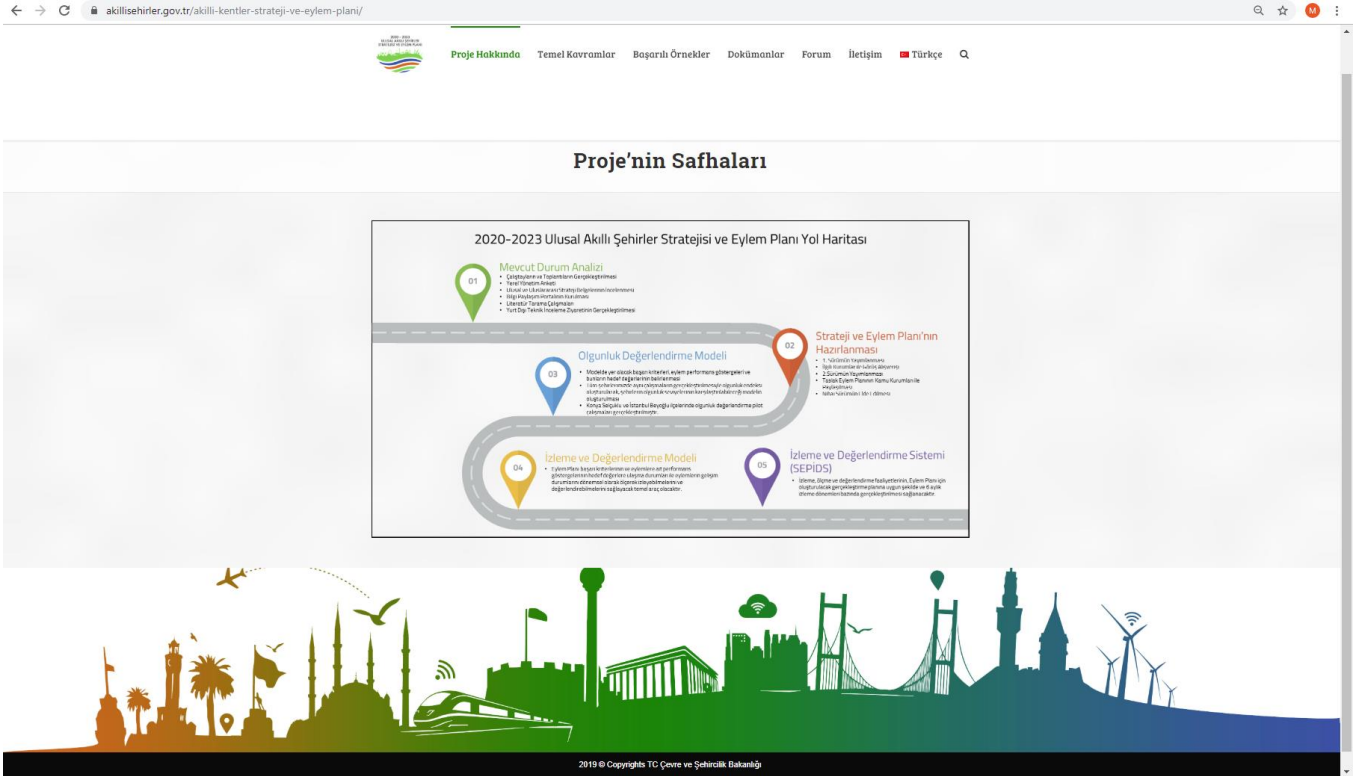


Figure 6. Smart Cities Information Sharing Portal

2 VISION AND STRATEGY

2.1 STRATEGIC PERSPECTIVE AND VISION

With 2020-2023 National Smart Cities Strategy and Action Plan, a human-oriented strategic perspective is adopted.

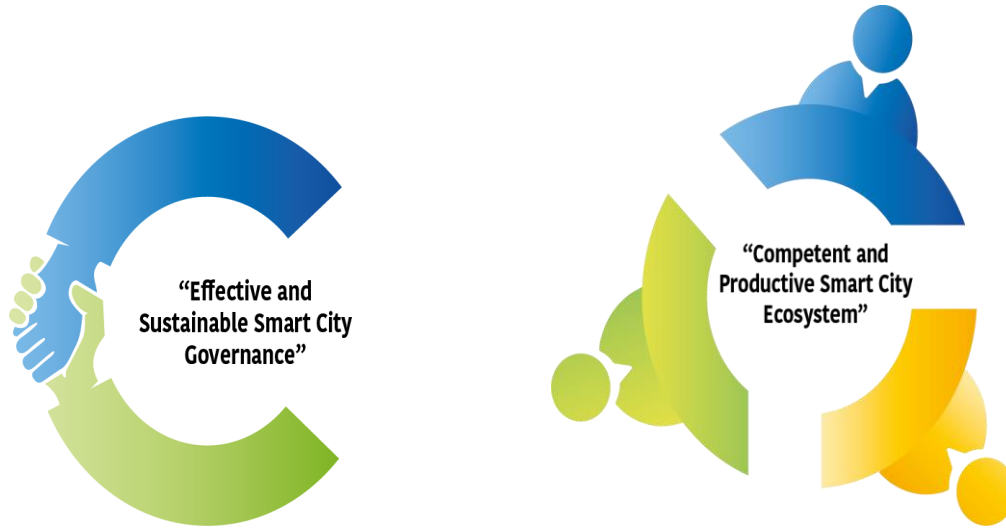


Figure 7. 2020-2023 National Smart Cities Strategy and Action Plan – Strategic Perspective

Through this perspective, it will be allowed to identify Smart City policies, to bring these policies into being, as well as the collaboration and coordination of each and every stakeholder of our country with active participation in Smart City transformation process.

The stakeholders within Smart City Ecosystem range in a quite broad spectrum. Focusing on the residents, the stakeholders comprise of central government institutes and organizations, local governments, private sector, non-governmental organizations and universities. Smart Cities will be rendered sustainable by means of effective administration of resources and services on the basis of coordination and interoperability between stakeholders. For ensuring the collaboration and coordination among Smart City stakeholders to be agile and organic, it is a must to identify the ecosystem approach and the governance mechanism to be utilized for accomplishing this approach, as well as designating the responsible stakeholder organizations in this mechanism.

Smart City recognizes the approach to secure meeting the expectations & solving the problems with the future foresights based on data and specialty as a must. The only way to meet this need will be possible through a competent and productive Smart City Ecosystem. With this motivation, “Competent & Productive Smart City Ecosystem” has been adopted as the strategic perspective.

Through this perspective, an agile and organic Smart City Ecosystem will be established, comprising of a Smart City Governance creating a new employment area and economy while setting a new vision within Smart City



transformation of our country, along with the individuals and organizations with the competency and maturity to develop & use local Smart City Solutions via national skills.

For establishing Smart City Governance and Ecosystem, it is deemed required;

- To constitute the national and local governance mechanisms,
- To ensure coordination within infrastructure studies on national geographic information systems,
- To make legal arrangements towards the information security and the protection of personal data,
- To have an understanding of integrated financial management,
- To increase the enterprise transformation capacity of solution providers,
- To increase the qualified human resource capacity taking part in development and delivery of the city services for which Smart City Solutions are used,
- To increase the capacities of service users related to Smart Cities,
- To establish an environment for collaboration and interaction oriented at the development, production and utilization of Smart City Technologies & Solutions among technology producers, solution providers and service providers,
- To design Smart City Architecture,
- To increase the participation of users in Smart City transformation of city services,
- To ensure the widespread use of city services for which Smart City Solutions are utilized,
- To improve the maturity of Smart City Components in terms of service integrity,
- To generate, share and utilize accurate, up-to-date, qualified and standard data

The following will be achieved through a Competent and Productive Ecosystem and Effective And Sustainable Governance:

- Effective and efficient use of resources will be ensured and costs will be reduced,
- Growth based on knowledge and innovation will be ensured,
- Competitiveness and employment will increase in Smart Cities field,
- Social, cultural and urban development will be ensured,
- A culture of interoperability and collaboration between stakeholders will be gained,
- Rapid change in technology and challenges in city life will be able to be managed in an agile manner,
- An integrated perspective will be introduced to Smart City Components,
- Joint national strategy and policy for Smart Cities will be determined,
- Investments will be evaluated and prioritized in an integrated manner in line with national strategies and policies,
- It will be ensured that policies are implemented properly with the right projects and activities,
- Pro-active and participatory governance will be established.

In this way, as 2020-2023 National Smart Cities Strategy and Action Plan aimed; in Turkey, creation of the necessary capabilities for Smart Cities field and creation of the driving force for economic growth and employment will be



achieved. In this respect, our vision has been determined as “**Livable and Sustainable Cities that Add Value to Life**” within the scope of 2020-2023 National Smart Cities Strategy and Action Plan.



**LIVABLE AND SUSTAINABLE CITIES
THAT ADD VALUE TO LIFE**

Following the application of Smart City policies implemented with an effective Smart City Governance Mechanism developed with the creation of a competent and productive Smart City Ecosystem, it is expected to achieve producing solutions foreseeing the problems and needs in cities, presentation of city services in a better quality and faster way, and thus increased satisfaction for city services and as a result improved quality of life.

2.2 STRATEGIC GOALS



Figure 8. 2020-2023 National Smart Cities Strategy and Action Plan– Strategic Goals



Strategic Goal 1: An Effective Smart City Ecosystem Will Be Established.

Objective 1.1 Smart City Ecosystem Governance Mechanism will be established.

In order to create Smart Cities, to implement them effectively and efficiently and to ensure their sustainability, the governance mechanisms will be established at the national, regional and local level where all ecosystem stakeholders actively participate and coordination between existing and newly created mechanisms will be ensured.

Action No	Action Name
1	City Specific Local Smart City Strategy and Roadmap will be prepared.
4	2020-2023 National Smart Cities Strategy and Action Plan will be implemented, monitored and evaluated.
10	National Smart City Governance Mechanism and Organization will be established, and Its Operability and Sustainability Will Be Ensured.
11	Local Smart City Governance Mechanism and Organization Will Be Established, and its Operability and Sustainability Will Be Provided.
14	Collaboration and Coordination Among Smart City Stakeholders Will Be Ensured.
23	Smart City Information Security Governance Mechanism and Organization will be created.
24	The protection of the personal data created and used within the scope of Smart City will be ensured.

Objective 1.2. Integrated Financial Management for Smart Cities will be provided.

Financial policies will be determined at national and local level in order to create a financially encouraging, facilitating, integrated and planned investment environment in Smart City transformation and an integrated financial management will be ensured with proper budget allocation.

Action No	Action Name
6	An Integrated and Planned Investment Environment Will Be Provided For The Effective and Efficient Use of Resources in Smart City Investments.
7	Financial Encouraging and Facilitating Environment Will Be Created in Smart City Transformation.



Strategic Goal 2: Smart City Transformation Capacity will be increased.

Objective 2.1. Smart City Transformation Capacity of Technology Producers, Solution Providers and Service Providers Will Be Increased.

Smart City transformation capacity of technology Producers, solution providers and service providers will be increased in order to increase the enterprise maturity to ensure the measurement and simultaneous improvement of Smart City maturity of cities, increase the capacity of competent human resources in Smart Cities field and the development of Smart City Capabilities in cities in a standard structure.

Action No	Action Name
2	Smart City Maturity Development Programs and Guidance Mechanism will be prepared and implemented.
3	Smart City Index will be created by using Smart City Maturity Assessment Model and Its Sustainability will be ensured.
13	The Capacity of Qualified Human Resources in the Development and Presentation of City services will be increased.

Objective 2.2 Smart City Transformation Capacity of residents will be increased.

One of the most powerful triggers of Smart City transformation and sustainability is the opportunity for residents to take an active role in Smart City transformation process and the opportunity to utilize the areas of urban transformation and urban development as a R&D laboratory for Smart City transformation.

Action No	Action Name
22	Environments enabling the transformation of the Residents into Smart City Solution makers will be created.
26	Urban Transformation and Development Areas will be evaluated as Smart Regions.

Strategic Goal 3: Facilitating and Guiding Environment in Smart City Transformation will be established.

Objective 3.1. Smart City Architecture will be created.

Developing the Common Smart City language and providing a standard structure for Smart City Capabilities and the assets included in these capabilities, and managing the interface, integration, interoperability of these capabilities, assets and the information provided by these in a standard, integrated, agile and secure manner and enabling



standardized and secure data exchange between these capabilities and assets, and conducting open data studies to create value from data, the effectiveness and sustainability of Smart City Ecosystem will be ensured and Smart City transformation will be accelerated.

Action No	Action Name
16	Smart City Terminology, Smart City Data Dictionary, Smart City Interoperability Model and Reference Architecture Model Will Be Created.
17	National Smart City Architecture and National Smart City Data Exchange Governance Platform will be developed, and its Operability and Sustainability Will Be Ensured.
18	Local Smart City Architecture and Data exchange Platforms will be established, its Operability and Sustainability Will Be Ensured.
19	National and Local Smart City Open Data Platforms will be established, its Operability and Sustainability Will Be Ensured.

Objective 3.2. Collaboration and Interaction will be established between Smart City Technology Producers, Solution Providers and Service Providers.

An environment of collaboration and interaction between Smart City technology Producers, solution providers and service providers will be created for the purpose of effective implementation of procurement activities in scope of a common terminology and understanding with determination of solutions for Smart City needs and ensuring wide usage of right projects in proper means in Turkey in scope of Smart City works implemented in cities.

Action No	Action Name
5	Smart City Projects With High Public Value Will Be Developed and Effective Planning, Implementation and Dissemination Will Be Ensured.
8	Smart City Technology Radar will be established.
9	Smart City Marketplace Will Be Established, its Sustainability and Operability Will Be Ensured.

Strategic Goal 4: Smart City Transformation will be ensured in City Services.

Objective 4.1. Stakeholder Participation in Smart City Solutions will be increased.

The number, diversity and inclusiveness of the participation mechanisms that enable the participation of stakeholders regarding Smart City Solutions used or planned to be used in city services will be increased.

Action No	Action Name
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25	Participation of users on the use of Smart City Solutions in the development and improvement of City Services will be increased.
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Objective 4.2. The City services in which Smart City Solutions are used will be expanded.

In order to ensure the sustainability and adoption of Smart City Solutions by the residents, the use of the services provided with Smart City Solutions will be expanded, service delivery channels will be improved, and its diversity will be increased. In this context, it will be ensured that all segments of the society are promoted and informed through various publicity channels.

Action No	Action Name
20	Service Delivery Channels will be improved and the Diversity will be Increased in order to Expand the Use of City Services in which Smart City Solutions Are Used.
21	Promotional Channels for City Services in which Smart City Solutions are used Will Be Diversified.

Objective 4.3. Maturity of Smart City Components will be increased in service integrity.

Smart City Components in cities will be presented in an integrated, systematic and data-based manner in the service integrity, and Maturity of Smart City Components will be increased by evaluating and developing Smart City solutions.

The maturity of Smart City Components related with the actions numbered between 15.1 and 15.14 will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing the Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for the Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.

Action No	Action Name
12	With The Use of Smart City Solutions, City Services Will Be Provided in Service Integrity.
15	Maturity of The Components of Smart City Will Be Increased.
15.1	Maturity of The Component of Smart Governance Will Be Increased.
15.2	Maturity of The Component of Smart Environment Will Be Increased.
15.3	Maturity of The Component of Smart Economy will be Increased.
15.4	Maturity of The Component of Smart Energy will be Increased.



Action No	Action Name
15.5	Maturity of The Component of Smart Residents will be Increased.
15.6	Maturity of The Component of Smart Transportation will be Increased.
15.7	Maturity of The Component of Smart Building will be Increased.
15.8	Maturity of The Component of Smart Health will be Increased.
15.9	Maturity of The Component of Disaster and Emergency Management will be Increased.
15.10	Maturity of The Component of Smart Security will be Increased.
15.11	Maturity of The Component of Information and Communication Technologies will be Increased.
15.12	Maturity of The Component of Smart Spatial Management will be Increased.
15.13	Maturity of The Component of Geographic Information Systems will be Increased.
15.14	Maturity of The Component of Smart Infrastructure will be Increased.



3 ACTION PLAN

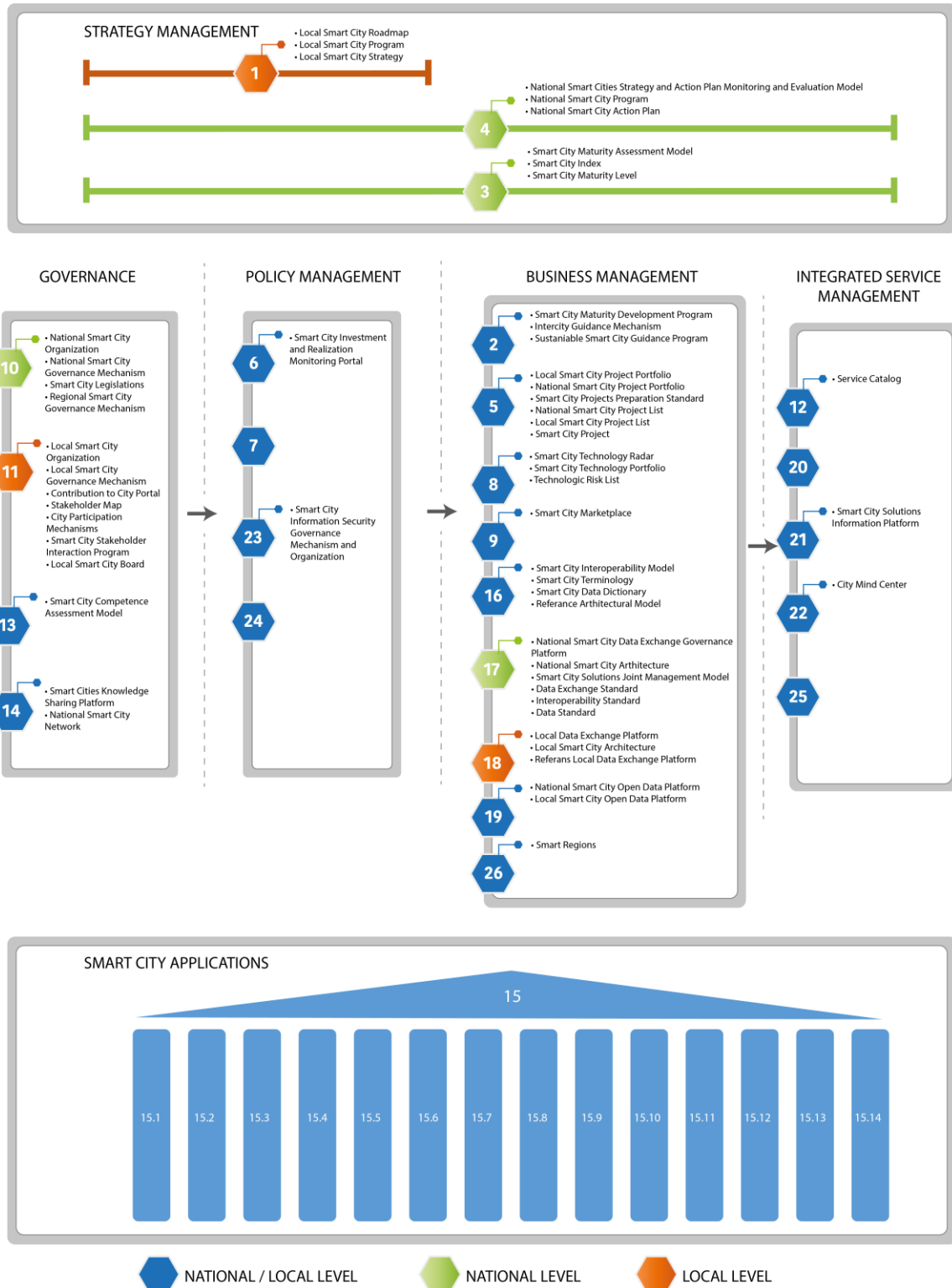


Figure 9. The Logical Grouping of Actions



(1) CITY SPECIFIC LOCAL SMART CITY STRATEGY AND ROADMAP WILL BE PREPARED.

Action Identifier	1
Action Name	City Specific Local Smart City Strategy and Roadmap will be prepared.
Short Description	Necessary works will be carried out for the preparation, implementation, monitoring, evaluation and change management and sustainability of the city's Smart City Strategy and Roadmap.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization - General Directorate of Local Governments• Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems• Local governments
High Level Implementation Steps	<ol style="list-style-type: none">1. The mechanisms for central government (strategy areas, indicators to be monitored) and financial resources will be developed for strategy management (preparation, implementation, monitoring evaluation and change, maturity assessment, risk management) within the scope of Smart Cities.2. The Local Smart City Strategy will be gradually developed taking the current state of the city into account.3. Local Smart City Strategy will be ensured to be compatible with the existing Strategic Plans by taking into consideration the characteristics of the city and prioritizing the needs of the city.4. Local Smart City Strategy prepared by Cities will be ensured to comply with:<ul style="list-style-type: none">• National Smart Cities Strategy and Action Plan;• Other regional, thematic and sectoral strategies that may be of interest to Smart City studies;• Local Smart City Strategy for Associated Districts.5. A Local Smart City Roadmap will be identified for each city in line with the Local Smart City Strategy. The Roadmap will be ensured to comply with:<ul style="list-style-type: none">• National Smart Cities Strategy and Action Plan;• Regional, thematic and sectoral roadmaps that may be of interest to Smart City studies;• Local Smart City Roadmap for Associated Districts.A Local Smart City Program will be prepared to provide joint management of Smart City Projects and activities to be implemented in order to implement the Local Smart City Roadmap.6. Local Smart City Strategy and Roadmap will be prepared by taking into consideration the results of the previous period.



Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• The district will be harmonized between the Local Smart City Strategies, the district's Local Smart City Strategies and the National Smart City Strategy.• Local Smart City Strategies prepared by cities will be aligned with top policies, thematic, sectoral and regional strategies.• In the context of Connected Cities, intercity strategies will be harmonized as necessary.• Monitoring and evaluation works will ensure that strategies and objectives are implemented.• An effective Smart City transformation will be ensured by the local Smart City stakeholders adopting a common vision and guiding their work with the ecosystem approach.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(2) SMART CITY MATURITY DEVELOPMENT PROGRAMS AND GUIDANCE MECHANISM WILL BE PREPARED AND IMPLEMENTED.

Action Identifier	2
Action Name	Smart City Maturity Development Programs and Guidance Mechanism Will Be Prepared And Implemented.
Short Description	Smart City Maturity Development Program will be prepared for each city by evaluating the current maturity of cities and Smart City Capabilities prioritized in the national layer. A guidance mechanism will be established and implemented to provide guidance to cities. The provision of intercity guidance will be supported in this context.
Responsible Institutions and Organizations	<ul style="list-style-type: none">Ministry of Environment and Urbanization - General Directorate of Geographic Information SystemsMinistry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">Smart City Maturity Development Program will be prepared for each city, and financial support will be provided for each program by taking into consideration the current maturity of cities and evaluating Smart City Capabilities prioritized in the national layer. These Programs will be aligned with national strategies and policies as well as city-specific strategies.A guidance mechanism will be established and implemented by the Ministry of Environment and Urbanization for Smart Cities.<ul style="list-style-type: none">Guidelines will be prepared in the areas that will be needed in Smart Cities field with the priority of Smart City Capabilities identified.The prepared guidelines will be made available to all stakeholders from Smart Cities Information Sharing Platform.Trainings will be organized in order to expand the use of prepared guidelines.Intercity Guidance Mechanism will be established by taking into consideration the maturity of cities. The rules for the guidance and financing to be provided by cities with higher maturity to less mature cities will be determined within the framework of this mechanism. Inspection and assurance activities will be planned in order to secure and evaluate the activities carried out by the Intercity Guidance Mechanism.The Sustainable Smart City Guidance Program will be created with the scope of guidance to be provided for each group by identifying the city groups providing and receiving guidance through the Intercity Guidance Mechanism.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">Smart City Capabilities will be developed in a standard structure in cities.It will contribute to providing qualified city services.



	<ul style="list-style-type: none">• With the guidance mechanism for Smart Cities, cities will develop a common approach.• Through the dissemination of the guidelines, Smart City awareness of all stakeholders will be increased and adaptation to Smart City transformation will be facilitated and agile adaptation to change will be provided.• Contribution to the effective use of resources will be ensured.• Smart City maturity of all cities will be increased simultaneously.• The motivation will be increased by enabling the local governments to comprehend and adopt Smart City Applications with the experience sharing in the transformation of Smart City.
Widespread Impact Level	High
Ease of Application Level	Medium
Criticality Level of Action	Very High Critical



**(3) SMART CITY INDEX WILL BE CREATED BY USING SMART CITY MATURITY
ASSESSMENT MODEL AND ITS SUSTAINABILITY WILL BE ENSURED.**

Action Identifier	3
Action Name	Smart City Index Will Be Created By Using Smart City Maturity Assessment Model And Its Sustainability Will Be Ensured
Short Description	Smart City maturity levels will be determined and Smart City Index will be created by implementation of Smart City Maturity Assessment Model. According to the current maturity levels of the cities, specific improvement suggestions will be provided to each city and contribution will be made to increase the maturity level.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Smart City Maturity Assessment Model will be applied to the cities by the Ministry of Environment and Urbanization. In the meantime, the maturity of the city's stakeholders as well as the maturity of the city will be measured. "Local Government Smart City Maturity Assessment Survey" will be organized once a year.2. Turkey Smart City Index will be created through classification of cities evaluated by Smart City Maturity Assessment Model according to certain criteria.3. National Smart Cities Maturity Level will be measured using Smart City Index results.4. Sustainability will be ensured through regular implementation of Smart City Index. In this context, it will be ensured that they are included in the agenda of the official statistics program in relation to the measurement of performance indicators which are included in Smart City Maturity Assessment Model and which cannot be measured at present.5. Improvement proposals will be made to bring the cities' current level of maturity to the next level.6. In line with the results of Smart City Index, activities to raise awareness about Smart Cities will be organized with the contribution of experience sharing platforms and supported by reward mechanisms.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart City maturity will be measured will be measured by a common, systematic and specific structure for Turkey.• Awareness of cities in the field of Smart Cities will be increased.• Works in the field of Smart Cities will be encouraged.



	<ul style="list-style-type: none">• Turkey's competency in the field of measuring studies will increase and infrastructure will be established for Turkey to achieve positive results in international measurement studies.• Transparency will be ensured through measurement studies.• Developments implemented with regular renewed measurement studies will be made visible.• Guidance will be provided for cities to improve their specified maturity.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(4) 2020-2023 NATIONAL SMART CITIES STRATEGY AND ACTION PLAN WILL BE IMPLEMENTED, MONITORED AND EVALUATED.

Action Identifier	4
Action Name	2020-2023 National Smart Cities Strategy and Action Plan Will Be Implemented, Monitored And Evaluated.
Short Description	Following the publication of the 2020-2023 National Smart Cities Strategy and Action Plan, in the implementation stage, monitoring and evaluation activities will be carried out in order to ensure implementation and to monitor its development. In this context, coordination of responsible and related institutions and organizations will be ensured and the Strategy and Action Plan will be managed in a systematic and sustainable manner.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems• TÜİK
High Level Implementation Steps	<ol style="list-style-type: none">1. 2020-2023 National Smart Cities Strategy and Action Plan will be implemented and conducted with the discipline of program management as a whole.2. The authority responsible for the actions specified in the Strategy and Action Plan will be determined.3. During the preparation of a National Smart City Program including the projects and activities for the actions specified in the Strategy and Action Plan, Smart City Projects and activities will be evaluated with their financial dimensions and guidance will be provided to responsible and related institutions and organizations, and the program will be ensured to be compatible with the applicable and dynamic conditions.4. The developments related to the initiation / revision / finalization of the projects and activities related to the actions will be followed.5. Performance measurements will be conducted during the monitoring periods in accordance with the Monitoring and Evaluation Model.6. At the end of each monitoring period, a Periodic Monitoring and Evaluation Meeting will be organized together with the responsible and related institutions and organizations in order to ensure coordination.7. Coordination between the actions will be ensured in case of being needed during the implementation of the actions.8. Controlled change management will be ensured in order to ensure that the Strategy and Action Plan comply with the dynamic conditions and that the actions are implemented as planned.



	<p>9. The active use of the Monitoring and Evaluation System, which will be developed in order to carry out monitoring and evaluation activities in electronic environment, will be ensured by the stakeholders.</p> <p>10. The National Smart Cities Strategy and Action Plan will be prepared for the following term, taking into account the results of the previous term and the present needs of local governments.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart Cities Strategy and Action Plan will be implemented in an integrated and effective manner.• Sustainable motivation will be provided for the implementation of actions in institutions.• Adaptation of Smart Cities Strategy and Action Plan to dynamic conditions will be ensured.• Through periodic monitoring and evaluation activities, contribution to the principles of transparency and accountability in the field of Smart Cities will be ensured.• Active and continuous information sharing will be implemented in Smart Cities ecosystem.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Very High Critical



(5) SMART CITY PROJECTS WITH HIGH PUBLIC VALUE WILL BE DEVELOPED AND EFFECTIVE PLANNING, IMPLEMENTATION AND DISSEMINATION WILL BE ENSURED.

Action Identifier	5
Action Name	Smart City Projects With High Public Value Will Be Developed and Effective Planning, Implementation and Dissemination Will Be Ensured.
Short Description	Technical leadership will be provided at the national level in order to select Smart City Projects by taking into account the priority areas and capabilities at national level, to evaluate them with pilot applications and to take the decision to disseminate. In this context, a common approach will be established for Smart City Projects and widespread usage will be provided by adapting successful projects to other cities.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization –General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Taking into consideration the needs and solutions for the overall size of Turkey by the Ministry of Environment and Urbanization, policies related to Smart City Projects will be determined in a manner consistent with national and sectoral policies and actuality will be provided. It will be ensured that the policies regarding Smart City Projects adopted at the local level are in coordination with the policy at the national level. Legislative studies on the policies related to Smart City Projects will be carried out.2. Smart City Projects Preparation Standard will be established by the Ministry of Environment and Urbanization. The standard will include basic project information and details on governance.3. In line with the policies regarding Smart City Projects, example pilot projects will be selected by prioritization and by conducting cost-benefit analysis (measuring public value, social, economic and financial value). At this stage, the requirements will be projected by establishing a business scenario.4. Pilot projects will be funded by Smart City transformation funding.5. The activities and solution to be carried out on the basis of the pilot project will be planned as open systems developed by all stakeholders together with the principle of co-creation during the needs analysis phase.6. Following the pilot application, the dissemination advantage and the standardization potential for dissemination will be evaluated for the successful projects and the decisions will be taken on the dissemination, thus those projects will be included within the scope of the priority investment.7. Sample project designing processes will be created by using Smart City Projects Preparation Standard.



	<p>8. Prior to the dissemination of projects considered successful within other cities in need, under the guidance of the Ministry of Environment and Urbanization, the responsible unit at the local level will ensure that the needs for each dissemination in the city are met with the solutions offered by the project and possible problems that may be encountered will be determined. The implementation of the projects will be carried out at the city level in coordination and communication with the Ministry of Environment and Urbanization. Communication managers will be appointed for the projects, who will carry out the informing the national level and coordination duties.</p> <p>9. Projects that are not included in the dissemination but required within the scope of the city-specific projects in the National Smart City Program and the Local Smart City Program will be projected using Smart City Projects Preparation Standard and submitted to the Ministry of Environment and Urbanization. In this context, National Smart City Projects List and Local Smart City Projects List will be created separately on national and local level. It will be ensured that the information in these lists complies with Smart City Projects Preparation Standard. The project selection mechanism will be determined by the Ministry of Environment and Urbanization by ensuring that the central authority is structured to meet the needs in terms of capacity, and the governance mechanism will be defined for the assessment of conformity to the projects. Within the scope of this mechanism, conformity assessment will be conducted only for the projects included in the Local Smart City Program and the result will be communicated to the related unit on the local level. Improvement groups will be constituted that include people with expertise within the field of Smart Cities in order to support inter-project interaction and opportunities to create joint added value.</p> <p>10. National Smart City Projects Portfolio and Local Smart City Projects Portfolio will be created and managed through a platform that is open to stakeholders.</p> <p>11. Implementation of planned processes and standards will be ensured by monitoring and auditing activities for Smart City Projects. The decision to include projects in monitoring and auditing activities will be based on specific components or costs.</p> <p>12. The opportunities on sharing projects with different countries will be improved by ensuring projects with a generalized effect to be carried out abroad.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Correct selection, planning and implementation of Smart City Projects will be ensured in line with Smart City policies and responding to needs.• The efficiency and effectiveness of Smart City Projects will be ensured to be increased by means of increasing the rate of successful completion of the projects.• Efficient and effective use of public resources will be ensured by avoiding repeated and overlapping Smart City Projects investments.



	<ul style="list-style-type: none">• Return on investments will be ensured through pilot projects.• Widespread use of successful projects will be ensured by adapting projects between cities.• It will be ensured that all projects can be followed in a similar structure with the project portfolio.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Very High Critical



(6) AN INTEGRATED AND PLANNED INVESTMENT ENVIRONMENT WILL BE PROVIDED FOR EFFECTIVE AND EFFICIENT USE OF RESOURCES IN SMART CITY INVESTMENTS.

Action Identifier	6
Action Name	An Integrated an Planned Investment Environment Will Be Provided For Effective and Efficient Use of Resources in Smart City Investments.
Short Description	Providing effective and efficient use of resources in Smart City investments in cities, supporting them with incentives and facilitation activities, monitoring and evaluating investments, and developing national and local level financial policies to prevent repetitive investments and performing appropriate financial management activities.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Presidency- Directorate of Strategy and Budget• Ministry of Treasury and Finance• Ministry of Environment and Urban Planning- General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. High level financial planning and forecasting involving all stakeholders will be made regarding which sector makes the investment and in which area this investment is to be made, and the impact of the results of this planning will be evaluated and all stakeholders will find the common denominator in terms of decisions to be made.2. National Smart City Financial Policies will be established by the organization responsible for Finance Management function as one of of the National Smart City governance functions by using the governance mechanism to be established.<ul style="list-style-type: none">• Repetitive investments in the same areas and in the same nature will be prevented.• A monitoring and evaluation mechanism will be established for Smart City public investments and implementations.• Legislative studies will be carried out in order to implement policies aimed at encouraging and facilitating investments in Smart Cities field.• According to the results of the monitoring and audit activities to be carried out for Smart City Projects, legislative studies will be conducted to ensure the supervision of investments.3. In coordination with the National Smart City governance mechanism, the Local Smart City Financial Policies will be established by the unit responsible for the Finance Management function as one of the Local Smart City governance functions using the governance mechanism to be established.<ul style="list-style-type: none">• Repetitive investments in the same areas and in the same nature will be prevented.



	<ul style="list-style-type: none">• A monitoring and evaluation mechanism will be established for Smart City public investments and implementations.• Legislative studies will be carried out in order to implement policies aimed at encouraging and facilitating investments in Smart Cities field.• According to the results of the monitoring and audit activities to be carried out for Smart City Projects, legislative studies will be conducted to ensure the supervision of investments. <p>4. Financial management activities for Smart Cities will be carried out by the organization responsible for the Finance Management function as one of the National Smart City governance functions, using the governance mechanism in which the investor is involved within the decision support mechanism. National Smart City Financial Policies will be determined by focusing on the cost value beyond the standard silo limits of Smart Cities and the determination of integrated and flexible budgets will be provided, and also the national and local budget will be allocated for Smart City services and investments according to prioritized needs..</p> <p>5. In coordination with the National Smart City governance mechanism, the financial management functions related to Smart Cities will be carried out by means of using the governance mechanism identified in line with the Local Smart City Financial Policies that are determined by the unit responsible for Financial Management Function as one of the Local Smart City governance functions.</p>
Planned Start and End Dates	2020-1 2022-2
Expected Benefits	<p>In Smart Cities field, both financial and human resources are limited. This necessitates the correct use of limited resources and the coherent investments in the right areas. Within this framework, it is necessary to prevent Smart City investments from being made by both public and private sectors in the same areas and in the same nature. With this action,</p> <ul style="list-style-type: none">• Efficiency of investments will be increased with effective use of limited resources.• Repetitive and overlapping Smart City investments will be prevented.• Investments can be made in different fields that are needed with these resources.• Smart City investment projects will be planned and implemented at national and local levels in line with Smart City financial policies.• A safe investment environment will be established by eliminating the risks faced by buyers and sellers.
Widespread Impact Level	High



Ease of Application Level	Difficult
Criticality Level of Action	Very High Critical



(7) A FINANCIALLY ENCOURAGING AND FACILITATING ENVIRONMENT WILL BE ESTABLISHED IN SMART CITY TRANSFORMATION.

Action Identifier	7
Action Name	A Financially Encouraging and Facilitating Environment Will Be Established In Smart City Transformation.
Short Description	These are the activities which include creating an environment that provides awareness, while supporting and facilitating the types of financial resources, providers and business models used in Smart City transformation, and informs and guidelines on the use of business models that are appropriate to the needs, and the creation of a new business model for unmet needs.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. An environment that includes financial resource types, providers and business models will be created in Smart City transformation. Promotion, information and guidance activities will be carried out on the types of financial resources, providers and business models. Policies for the establishment of new business areas, start ups, entrepreneurship, clustering activities, new business models, implementation of innovative activities, etc. will be determined and necessary legal arrangements will be implemented.2. New business models will be created in cases where the need is not met with existing business models.3. Incentive and facilitation activities will be carried out for the implementation of business models.4. A support program will be established for the priority areas identified in Smart City transformation.5. Monitoring and evaluation of the financing provided based on the performance indicators included in Smart City Index will be carried out.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Contribution into accelerating and facilitating the implementation of the works related to Smart City will be ensured.• Financial awareness and readiness will be improved in Smart City transformation.• Implementation of new ideas, job sites and innovative activities will be facilitated.• Financial opportunities will be created by developing new business models.



	<ul style="list-style-type: none">Contribution to the implementation of policies related to priority areas in Smart City field will be ensured.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	Very High Critical



(8) SMART CITY TECHNOLOGY RADAR WILL BE ESTABLISHED.

Action Identifier	8
Action Name	Smart City Technology Radar Will Be Established.
Short Description	Based on Smart City Capabilities, Smart City Technology Radar will be identified and governed by technologies that prove the success of Smart City transformation. In this context, an environment in which the proposed technologies are projected to be used will be created and information security protection profiles will be established.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. On the basis of Smart City Capabilities, the technologies used in the solutions in the National and Local Smart City Solution Portfolio and the technologies that are not yet used but proposed to be used will be analyzed, and Smart City Technology Portfolio will be created accordingly.2. The technologies included in Smart City Technology Portfolio will be subjected to scoring in line with a determined model, and the technologies that are encouraged, suggested and not recommended to be used will be identified. Smart City Technology Radar will be created on the basis of Smart City Capabilities.3. The governance mechanism of Smart City Technology Radar will be defined. Within the scope of governance mechanism, technological risks, change management mechanism, promotion activities and talent acquisition methods will be defined and the governance will be ensured.4. An environment will be created in which the use of technologies proposed in Smart City Technology Radar will be encouraged.5. Information security protection profiles will be created in line with Smart City Information Security Governance Mechanism and Organization for the technologies included in Smart City Technology Radar.
Planned Start and End Dates	2020-1 2021-2
Expected Benefits	<ul style="list-style-type: none">• It will be ensured that the technologies with successful results are used.• Solutions will be ensured to be use compatible technologies.• Awareness will increase on Smart City technological risks.• All stakeholders will be made aware of information security threats and disposal methods.• Use of domestic solutions will be increased.• Use of nature-based solutions will be increased.



Widespread Impact Level	Medium
Ease of Application Level	Very Difficult
Criticality Level of Action	High Critical



(9) SMART CITY MARKETPLACE WILL BE ESTABLISHED, ITS SUSTAINABILITY AND OPERABILITY WILL BE ENSURED.

Action Identifier	9
Action Name	Smart City Marketplace Will Be Established, its Sustainability and Operability Will Be Ensured.
Short Description	These are the activities for establishing the marketplace environment required for meeting the needs in the Smart City field.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization-General Directorate of Geographic Information Systems• Ministry of Industry and Technology• Ministry of Commerce
High Level Implementation Steps	<ol style="list-style-type: none">1. Local Smart City Solution Portfolio and National Smart City Solution Portfolio, where Smart City Solutions are determined on the basis of Smart City capabilities, and supplier portfolio consisting of accredited and authorized technology manufacturers and solution providers will be identified.2. The solutions included in the National Smart City Solution Portfolio and the Local Smart City Solution Portfolio will be evaluated.3. Smart City Marketplace, which is planned as an electronic platform where solutions are provided according to business scenarios and suppliers and needs are managed will be created by analyzing the technologies. Smart City Marketplace will be used to implement Smart Regions defined in action 26.4. The needs of cities for Smart City Solutions will be met through Smart City Marketplace.5. Through Smart City Marketplace, feedback on solutions and user experiences will be provided.6. Reference specifications for Smart City Solutions will be established and methods for acquisition will be determined.7. Local cluster studies will be carried out.8. Foreign-source dependency (product cost and product development cost) will be measured in Smart City Solutions and necessary improvements will be made based on the measurement.9. The legislation on the procurement process of Smart City Solutions will be updated.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• It will be ensured that needs, solutions and solution producers are identified in Smart Cities field.



	<ul style="list-style-type: none">• Efficient implementation of procurement activities will be ensured for Smart City Solutions.• It will be ensured that Smart City needs are met correctly through feedback mechanisms.• Reference technical specifications and contracts will be created to be used in the tenders and purchases of Smart City Solutions procurement process, thus preventing waste of time and resources.• A common terminology and understanding will be provided for the needs and solutions of Smart Cities.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of Action	High Critical



(10) NATIONAL SMART CITY GOVERNANCE MECHANISM AND ORGANIZATION WILL BE ESTABLISHED, ITS OPERABILITY AND SUSTAINABILITY WILL BE ENSURED.

Action Identifier	10
Action Name	National Smart City Governance Mechanism And Organization Will Be Established, Its Operability And Sustainability Will Be Ensured.
Short Description	The aim is to provide a common perspective in which the views of all the Smart City Ecosystem stakeholders are included, with a governance mechanism in the national layer regarding the Smart Cities, and the legal and the actors, roles, responsibilities, functions and processes of the organization, in order to ensure the efficiency and sustainability of the ecosystem as a whole, which is determined in the administrative sense.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization – General Directorate of Geographic information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Smart City strategies and policies will be represented by high level political willpower.2. The Ministry of Environment and Urbanization is the authority that will lead the governance of stakeholders in Smart City Ecosystem in technical and bureaucratic terms, manage Smart City resources and control processes.3. The authority representing local governments within the National Smart City Governance Mechanism will be identified.4. The authority to represent each Smart City component in the National Smart City Governance Mechanism will be identified.5. The National Smart City Governance Board will be established, which will include the authorities responsible for each of the Smart City components, the technical and bureaucratic authority, and the authority representing local governments in the national layer.6. The National Smart City Organization will be established by identifying stakeholder organizations responsible for the functions included in the National Smart City Governance Mechanism or by creating them when necessary.7. The National Smart City Governance Mechanism will be established in a multilayered way by incorporating the views of the ecosystem stakeholders, taking into account the following functions:<ul style="list-style-type: none">• Strategy Management• Creating and Implementing A Smart City Roadmap• Solution Development• Project Management• Financial Management



- Supply Management
- Organization Management
- Resource Management
- Service Management
- Planning and Implementation
- Operation and Maintenance
- Monitoring, Evaluation and Change
- Sustainability
- Coordination Among Stakeholders
- Education and Guidance
- Data Ownership, Sharing, And Interoperability
- Smart City Architecture Management
- Publicization of Data, Process and Services
- Assurance and Audit
- Risk Management
- Identity and Privacy Management
- Digital Inclusion and Channel Management

8. It will be ensured that the technical and managerial needs of the stakeholders in Smart City Ecosystem can be transferred to the decision makers through continuous or temporary working groups.
9. Smart City Legislation that regulates the governance (units, roles, duties and authority areas, processes, business rules, etc.) of institutions and organizations that will perform the functions in the business layer of the National Smart City Architectural on the central administration side will be established.
10. The current legislation governing Smart City Governance Mechanism will be determined and its compliance with Smart City Legislation will be ensured.
11. Specialized units that can be contacted in the activities to be carried out in the specified institutions and organizations will be determined and formed when necessary.
12. Identified institutions and organizations, units, roles and experts involved in these roles will be defined by National Smart City Architecture.
13. Regional Smart City Governance Mechanism will be established to meet the intercity needs to be directed by the National Smart City Governance Mechanism, and its operability and sustainability will be ensured.
14. National Smart City Governance Mechanism will be coordinated with Local Smart City Governance Mechanism and Regional Smart City Governance Mechanism.



	15. Participatory mechanisms (such as the establishment of City Councils and Neighborhood Associations, voting on the decision on the website and/or social media) will be developed in order for citizens to have a say in decisions regarding Smart Cities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Effective governance will be ensured by strengthening the participation of stakeholders.• Roles and responsibilities in Smart Cities field will be clearly defined.• Conflicts of duties and authorization related to Smart City applications will be eliminated.• Activities related with Smart Cities will be planned and implemented in an integrated perspective and in collaboration.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of Action	High Critical



(11) LOCAL SMART CITY GOVERNANCE MECHANISM AND ORGANIZATION WILL BE ESTABLISHED, ITS FUNCTIONALITY AND SUSTAINABILITY WILL BE ENSURED.

Action Identifier	11
Action Name	Local Smart City Governance Mechanism And Organization Will Be Established, Its Functionality And Sustainability Will Be Ensured.
Short Description	Local Smart City Governance Mechanism will be established by cities, stakeholders will be identified and interacted on the basis of Smart City components, and city participation mechanisms will be developed. This includes the ability of cities to compete in a connected economy and to ensure the welfare of their citizens in a sustainable way and to redesign their strategies and adapt to innovations.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization – General Directorate of Local Governments• Ministry of Environment and Urbanization – General Directorate of Geographic information Systems• Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">1. Local Smart City Strategy and Policies will be represented by political willpower to ensure high level representation in the local area.2. Technical and administrative authority/authorities that will be able to lead the governance of stakeholders in the Local Smart City Ecosystem in technical and bureaucratic terms and manage resources and control processes of Smart City will be identified.3. A Local Smart City Governance Board will be established, including the authorities responsible for each of Smart City components, technical and bureaucratic authorities, and local government in the local layer,4. The authority that will represent the governance mechanism in the national layer will be determined in the Local Governance Mechanism.5. The Local Smart City Governance Mechanism in a layered structure will be established with consideration of the following functions and the Local Smart City Organization in which the stakeholder organizations responsible for the functions in this Mechanism are assigned or formed when necessary:<ul style="list-style-type: none">• Strategy Management• Determination of Policies• Creation and Implementation of a Roadmap• Solution Development• Project Management• Financial Management



- Organization Management
 - Supply Management
 - Resource Management
 - Service Management
 - Planning and Implementation
 - Operation and Maintenance
 - Monitoring, Evaluation and Change
 - Sustainability
 - Stakeholder Collaboration and Coordination
 - Education and Guidance
 - Data Ownership, Sharing, and Interoperability
 - Smart City Architecture Management
 - Publicization of Data, Processes and Services
 - Assurance and Audit
 - Risk Management
 - Identity and Privacy Management
 - Digital Inclusion and Channel Management
6. Local Smart City Ecosystem stakeholders will be identified and analyzed to create a Stakeholder Map and Smart City Stakeholder Engagement Program that identifies inter-stakeholder engagement based on Smart City components.
 7. Local Smart City Governance Mechanism and Organization will be defined with a common perspective by including the views of the ecosystem stakeholders.
 8. Organizations, roles and experts involved in the Local Smart City Governance Mechanism will be identified with the Local Smart City Architecture and will be updated and shared with the entire ecosystem.
 9. Local Smart City Legislation regulating the Local Smart City Governance Mechanism will be established.
 10. City Participation Mechanisms will be established.
 - Participation mechanisms (such as voting on a decision on the city through the municipality website, social media, etc.) will be developed in order for the residents to have a say in the decisions made about the city.
 - “City Contribution Portal” will be created, which will enable the publication of revenue and expenditure data such as local government budget in order to create a more transparent and accountable management approach.
 - The portal will share information about the taxes collected by cities and the municipal services in which these taxes are used.



	11. Local Smart City Governance Mechanism and Organization and National and Regional Smart City Governance Mechanism and Organizations will be coordinated.
Planned Start and End Dates	2020-1 2022-2
Expected Benefits	<ul style="list-style-type: none">• Effective governance will be ensured at the local level by reinforcing stakeholder participation.• The roles and responsibilities in Smart Cities field will be clearly defined in local layer.• Smart Cities works will be planned and implemented in an integrated perspective and in cooperation in local layer.• Joint working culture among stakeholders will be established.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Medium Critical



(12) WITH THE USE OF SMART CITY SOLUTIONS, CITY SERVICES WILL BE PROVIDED IN SERVICE INTEGRITY

Action Identifier	12
Action Name	With The Use of Smart City Solutions, City Services Will Be Provided in Service Integrity
Short Description	The services offered by different service providers (Central Government, Local Government and private sector) will be integrated with the use of Smart City Solutions to ensure service integrity in order to provide city services in a single-point, user-oriented, quick and easy way.
Responsible Institutions and Organizations	<ul style="list-style-type: none">Ministry of Environment and Urbanization – General Directorate of Geographic information SystemsMinistry of Environment and Urbanization – General Directorate of Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">City services will be defined by the organization responsible for service delivery within the local governance mechanism of the cities, service owners and service processes will be determined, and Service Catalog will be prepared.Integration needs among city services will be determined with consideration of user experience.The current state analysis will be carried out with the participation of stakeholders in order to determine the scope of the integration needs and the planning to implement these needs.The main scenario and alternative scenarios will be determined, process steps will be established, the constraints, exceptional cases, responsible and related persons of the scenarios will be determined, and their priorities will be defined within the scope of redesigning or improving the city service.The integrations that will ensure service integrity will be implemented in compatible with Local Smart City Architecture, and Smart City Solutions will be developed or improved in accordance with related processes.Legal arrangements will be made in order to ensure service integrity.Necessary performance, security and continuity requirements will be met to ensure the sustainability of the integrations.Dissemination plans will be prepared for the commissioning of the integrations, pilot studies will be carried out if necessary, and dissemination plans will be implemented.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">City services will be provided in an easy way and service provision effectiveness and efficiency will be achieved with time and costs saved.



	<ul style="list-style-type: none">• The user experience in city services will be improved.• Service levels will be improved in city services.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of Action	Medium Critical



(13) THE CAPACITY OF QUALIFIED HUMAN RESOURCES IN THE DEVELOPMENT AND PRESENTATION OF CITY SERVICES WILL BE INCREASED.

Action Identifier	13
Action Name	The Capacity Of Qualified Human Resources In The Development And Presentation Of City Services Will Be Increased.
Short Description	It is the establishment and implementation of policies, legislation, programs and models which are aimed at increasing the qualifications and quantities of the employees of public institutions and organizations and private sector to operate in Smart Cities field.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Family, Labor and Social Services• Ministry of National Education• Ministry of Environment and Urbanization – General Directorate of Geographic information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Smart City expertise and the necessary capabilities related to these expertises will be determined, and Smart City Competency Assessment Model will be established in the distinction of central government, local governments and private sector.2. Current human resource capacity will be evaluated with Smart City Competency Assessment Model.3. Capacity will be developed with creation of capacity building programs. In this context:<ul style="list-style-type: none">• A program will be developed to increase the capacity of qualified human resources.• Formal and non-formal trainings related to Smart City expertise will be planned and implemented.• Activities will be carried out in order to raise awareness and vision for executive level employees in Smart City field.• Legal and administrative arrangements will be made for the employment of manpower to operate in Smart City field.• Incentives and supports will be increased to keep the workforce specialized in Smart City field within the country and to attract those who are abroad.• Human resource capacity in Smart City field will be increased by prioritizing and using national resources and opportunities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Competent human resources capacity in Smart City field will be increased by prioritizing and developing national resources and opportunities.



	<ul style="list-style-type: none">• Legal, financial and enterprise constraints at the national, local and sectoral levels that hinder the employment of competent human resources will be reduced.• The functionality and sustainability of Smart Cities will be ensured with the effective use of human resources in city services.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(14) COLLABORATION AND COORDINATION AMONG SMART CITY STAKEHOLDERS WILL BE PROVIDED.

Action Identifier	14
Action Name	Collaboration And Coordination Among Smart City Stakeholders Will Be Provided.
Short Description	It is the creation and development of a collaborative environment in which stakeholders can take an active role in the formation and implementation of policies regarding Smart City.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Presidency of The Republic of Turkey• Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems• Ministry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">1. At the following levels related Smart Cities; collaborations aimed at building a working culture together and establishing trust between stakeholders and a transparent, participatory and accountable structure will be established.<ul style="list-style-type: none">• In-house• Smart City component based• Among the stakeholder types• Among city stakeholders• Interregional• In the ecosystem• At the international level2. On the basis of competency and responsibilities, the organization responsible for the collaboration at each level mentioned above and authorized persons in these organizations by the collaboration and coordination function of the National Smart City Governance Mechanism.3. Short and Medium Term plans including activities of the organization responsible for collaboration to ensure the collaboration, will be prepared and submitted for sharing.4. The prepared medium and long term plans will be monitored and evaluated.5. Innovative collaboration models will be established by the organization responsible for collaboration within the framework of the network organization aimed at increasing interoperability between universities, non-governmental organizations, private sector and public sector.6. It will be ensured that Smart City stakeholders can suggest their solutions regarding Smart Cities through knowledge and experience from different perspectives, if necessary, by sharing own financial resources within a framework of inter-expert network regardless of a hierarchical structure.



	<p>7. At national level unions including central and Local Governments, private sector, non-governmental organizations and universities and that will contribute to the creation of common solutions by sharing their knowledge and experiences will be established.</p> <p>8. National Smart City Network consisting of Local Governments will be established. In this context;</p> <ul style="list-style-type: none">• Training, knowledge sharing and capacity building environment will be created for Local Governments.• Activities for meeting the needs of cities in collaboration will be carried out.• Initiatives will be taken and legislative proposals will be developed in order to meet the needs of Local Governments regarding city services and to solve their problems.• Developments related to Smart Cities will be monitored and Local Governments will be supported in structuring and producing services in accordance with these developments• Information sharing platforms related to Smart Cities will be established. <p>9. Technical and managerial support will be provided to the institutions / organizations for the sharing of knowledge and experience within the scope of collaboration on Smart City.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Repetitiveness in city service processes will be eliminated and continuity will be provided.• Effective and efficient management of human, financial, physical and technological resources and services of the country, institutions, companies will be ensured by Smart City Projects.• It will be possible to carry out ideas and studies that create innovative and new values in Smart Cities field.• The flexible, high stakeholder adaptation, durable solutions related Smart Cities will be suggested.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of Action	High Critical



(15) MATURITY OF THE COMPONENTS OF SMART CITY WILL BE INCREASED.

Action Identifier	15
Action Name	Maturity of The Components of Smart City Will Be Increased.
Short Description	Smart City Solutions applied in cities will be evaluated with expertise in a central structure and by developing Smart City Solution Assessment Models, conformity assessment will be made with the future impact analysis method. The maturity of Smart City Components will be increased in the cities by making this mechanism continuous through the realtime use of the data obtained from the applied solutions in the models.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization - General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. It will be ensure that a committee based on Smart City Component will be established by the Ministry of Environment and Urbanization with the participation of ecosystem stakeholders, technology producers and solution providers responsible for each component responsible for each component.2. The committee will develop dynamic Smart City Solution Assessment Models using quantitative up-to-date data on the basis of related Smart City Component capabilities. A mechanism that can be simulated in order to estimate the future impact with Smart City Solution will be created by using these models.3. In accordance with Smart City Technology Portfolio, a Local Smart City Solution List will be created on the basis of the city and a Local Smart City Solution Portfolio will be created by considering the capabilities in the Local Smart City Architecture. It will be ensured that this inventory and portfolio will be kept up to date on the basis of the city.4. In accordance with Smart City Technology Portfolio, the National Smart City Solution List will be created at the national level and the National Smart City Solution Portfolio will be created by considering the capabilities in the National Smart City Architecture. It will be ensured that this inventory and portfolio will be kept up to date at the national level.5. The existing Smart City Component maturity will be determined by evaluating the Local Smart City Solution List using Smart City Maturity Assessment Model.6. Smart City Solutions will be determined which will increase the maturity of Smart City Components through the use of Smart City Technology Portfolio and National Smart City Solution Portfolio.7. Appropriateness of Smart City solutions will be evaluated by using Smart City Solution Assessment Models if they are available, or by using expert opinions8. Solutions considered as appropriate, will be projected and the National Smart City Projects Portfolio created in case the project owner is the central government, and the



	<p>Local Smart City Projects Portfolio created in case the project owner is a local government will be updated.</p> <p>9. Impact values realized and planned with the implementation of Smart City Solution will be used in updating Smart City Solution Assessment Models or developing new models. Local Smart City Solution Inventory, Local Smart City Solution Portfolio, National Smart City Solution List and National Smart City Solution Portfolio will be updated with Smart City Solutions implemented. In cases where Smart City Solutions implemented in the national layer concern the city, the Local Smart City Solution List and the Local Smart City Solution Portfolio will also be updated.</p> <p>10. The related Smart City Component maturity will be reassessed after Smart City Solutions are implemented.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• It will be ensured that the maturity of Smart City Components is increased in a comprehensive way in line with the common mind.• It will be ensured that projects with high benefit to the city will be realized with the assessment of the appropriateness of Smart City Solutions.• Contribution will be provided to the creation of Smart City Solutions based on data and securing the future.• Proper use of resources will be ensured by developing solutions with high public value for cities.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of Action	Medium Critical



(15.1) MATURITY OF THE COMPONENT OF SMART GOVERNANCE WILL BE INCREASED.

Action Identifier	15.1
Action Name	Maturity of The Component of Smart Governance Will Be Increased.
Short Description	In cities activities to increase the maturity of Smart Governance component will be realized in Smart City transformation of cities by using Smart City Technology Portfolio and National Smart City Solution Portfolio.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<p>The maturity of Smart Governance Component will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing the Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for the Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. Related works will be carried out to expand enterprise applications in local governments2. Related works will be carried out for the realization of data-based governance in the the decisions taken.3. Service delivery, feedback, publicity, information and participation activities will be carried out in the cities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Contribution will be made for efficient, effective and easier management of city services and management.• The quality of city services will increase and the services creating the value will be possible.• It will contribute to Smart City transformation of local governments.
Widespread Impact Level	High



Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(15.2) MATURITY OF THE COMPONENT OF SMART ENVIRONMENT WILL BE INCREASED.

Action Identifier	15.2
Action Name	Maturity of The Component of Smart Environment Will Be Increased.
Short Description	In cities, in order to increase the maturity of Smart Environment component determined by Smart City Maturity Assessment practices, by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio, in enabling Smart City transformation of cities; environmental management will be carried out taking into account waste, air, water, land, effective fight against climate change, the management of protected assets and ensuring the sustainability of the environment and nature, and green city planning.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization - General Directorate of Environmental Management• Ministry of Environment and Urbanization - General Directorate of Protection of Natural Assets• Ministry of Environment and Urbanization - General Directorate of Environmental Impact Assessment, Permit and Inspection• Ministry of Environment and Urbanization - General Directorate of Spatial Planning• Ministry of Environment and Urbanization- General Directorate of Local Governments• Ministry of Agriculture and Forestry - General Directorate of Water Management• Ministry of Agriculture and Forestry - General Directorate of Nature Conservation and National Parks
High Level Implementation Steps	<p>The maturity of Smart Environment Component will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of governance of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the action responsible and related institutions and organizations will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. Coordinated management of water resources will be ensured without compromising the quantity, quality and sustainability of surface water and groundwater mass within and outside the city.



	<ol style="list-style-type: none">2. Management of the activities related to separate accumulation of waste, collection with timely containers, transportation, transfer, separation, recycling, recovery, final disposal of waste and generation of energy from solid waste will be ensured.3. It will be ensured that the urban planning will be carried out based on environmental criteria and natural values, taking into account the high green area and green infrastructure.4. By the air quality monitoring systems, the collection, monitoring, evaluation of the data related to air quality, smell and pollution analysis, prevention of air pollution by taking necessary measures, improvement of air quality and implementation of air management will be ensured.5. It will be ensured that the adaptation capacity against the changes experienced due to global climate change will be increase, the negative results will be kept under control within certain limits, in addition, the greenhouse effect will be reduced and the effects of ozone layer destruction and climate change will be minimized.6. It will be ensured that pollution, degradation and desertification will be prevented by making necessary analyzes of the soil, soil rehabilitation and sustainable land management will be provided.7. It will be ensured that the protection of natural assets and natural protected areas, the ecosystem in which flora and fauna are located, will be proserved as a whole, biodiversity loss will be prevented and protected areas will be managed.8. In the context of sustainable environment; it will be ensured that environmental quality will be enhanced by reducing environmental pollution through practices carried out in order to protect the environment, to raise environmental awareness, to raise environmental health awareness, to promote and encourage positive contributions to the environment.9. It will be ensured that governance of natural resources such as soil, water and air will be ensured at the national, regional and local level through organization, resource management, planning and implementation, operation and maintenance, monitoring, evaluation and change, sustainability, interoperability, service management and inter-stakeholder coordination.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Contribution will be made to increase environmental quality.• Contribution will be made to sustainable development.• Contribution will be made to reducing human pressure on the environment.• Contribution will be made to the development of the mentality of inter-stakeholder coordination and sustainable environmental management in environmental protection.



	<ul style="list-style-type: none">• It will be ensured that the environment, which is the common existence of all living things, will be protected in a sustainable structure.• It will be ensured that natural resources such as water, air and natural assets are protected in an integrated structure and the loss and possible damages will be minimized.• It will be ensured that Smart Cities will be developed in harmony with the environment.• It will be ensured that Smart Cities are green friendly, environment friendly cities.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Very High Critical



(15.3) MATURITY OF THE COMPONENT OF SMART ECONOMY WILL BE INCREASED.

Action Identifier	15.3
Action Name	Maturity of The Component of Smart Economy will be Increased.
Short Description	For enhancing the maturity of Smart Economy component laid down by the applications in Smart City Maturity Assessment for ensuring transformation of cities into Smart City by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the cities, activities for the management, improvement and development of existing assets and activities within the scope of the management of the economy of the city as well as national and local layers will be performed
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Industry and Technology• Ministry of Treasury and Finance• Ministry of Environment and Urbanization- General Directorate of Local Governments
High Level Implementation Steps	<p>The Maturity of the Component of Smart Economy will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio of new technologies developed and used in these solutions. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders on national and local layers. The activities to be carried out within this scope will be performed under the policy ownership of the institutions and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local Governments of Ministry of Environment and Urbanization. Efforts will be made to disseminate economic Applications in local governments.</p> <ol style="list-style-type: none">1. The management of assets and activities that constitute city's economy will be ensured.2. Data will be produced, collected and managed by a database on assets and activities such as the current human resources, space, equipment, competition, production and potential capital that make up city's economy.3. The use of the database of assets and activities that make up the economy of city and the decision support mechanisms will be established.4. Improvement and development activities will be conducted to contribute to the economy based on data.



	<ul style="list-style-type: none">• Innovative approaches (such as Smart production techniques) will be encouraged to manage existing assets and activities.• A circular economic model will be adopted in the national layer.• The activities necessary for transforming the city to create added value by making it attractive for investors and labor force in the field of information, bringing brand value to the forefront and development will be supported.• We will seek to balance revenue distribution by creating equal opportunities for the benefits of Smart City Applications to be maximized and applications to thrive across the city. <p>5. The impacts of rural economy and city economy will be reciprocally assessed where this assessment will help guide decisions in the issue of Smart City.</p> <p>6. On-site development will be ensured in both rural, urban and regional levels taking into account potential and sectoral priorities</p> <p>7. By providing coordination between the economy of Smart City and national economy, contribution will be ultimately added to the saving and development on the national level and creation of the economy of Smart City.</p> <p>8. The relationship of the economy of Smart City with the markets operating in different locations and issues will be assessed through decision support mechanisms, setting and implementing Smart Economy objectives at the local layer.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Adoption and dissemination of Smart Economy applications will be ensured.• It will contribute to the maximum benefit from city resources.• Smart Cities will be able to meet their needs in the future, ensuring economic sustainability.• A self-sufficient and value-added city economy will be created.• The city will be attractively brought to the economy and to the production of Smart City Solutions.• The brand value of the city will be increased.• By establishing liaison between the city's economic potential and international economic policy and strategies of Turkey will help make more effective decisions on the economic vision of Turkey.• On-site development will be established.• Co-ordination will be contributed between the national and local economy.
Widespread Impact Level	High



Ease of Application Level	Very Difficult
Criticality Level of Action	Medium Critical



(15.4) MATURITY OF THE COMPONENT OF SMART ENERGY WILL BE INCREASED.

Action Identifier	15.4
Action Name	Maturity of The Component of Smart Energy will be Increased.
Short Description	In order to increase the Smart Energy component maturity determined by Smart City Maturity Assessment applications in cities to achieve Smart City transformation by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio; energy resources and networks management, energy consumption (supply-demand) optimization, efficient use of energy, use of renewable energy and alternative energy will be provided to ensure energy management.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Energy and Natural Resources• Ministry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<p>The maturity of Smart Energy Component will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of governance of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the action responsible and related institutions and organizations will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. Energy systems and resources will be operated and managed by Smart Solutions.2. Smartening of energy networks will be ensured.3. Energy consumption will be monitored and optimized.4. Renewable and sustainable energy production and consumption models will be supported and expanded.5. A governance that will enable the efficient and effective use of energy resources and systems will be realized within the framework of the following functions;<ul style="list-style-type: none">• Organization Management• Resource Management,• Service Management,• Planning and Implementation,• Operation and Maintenance,



	<ul style="list-style-type: none">• Monitoring, Evaluation and Change,• Sustainability,• Interoperability,• Coordination Among Stakeholder,• Energy Security Management
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Contribution will be provided for the environmentally sensitive evaluation of energy resources.• Contribution will be provided for the efficient and effective use of energy resources.• Energy supply and demand will be controlled.• Energy saving will be provided.• Supply security in the field of energy and security of energy infrastructures will be ensured.• Services will be provided in an agile, cost-effective and low-risk way.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Very High Critical



(15.5) MATURITY OF THE COMPONENT OF SMART RESIDENT WILL BE INCREASED.

Action Identifier	15.5
Action Name	Maturity of The Component of Smart Resident will be Increased.
Short Description	To increase the maturity level of the Smart Resident Component in cities, which is defined by Smart City Maturity Assessment applications to enable Smart City Transformation through the use of the Smart City Technology Portfolio and the National Smart City Solution Portfolio; studies will be carried out in many fields from education to culture, from arts to sports, from family-oriented services to meet the needs of disadvantaged groups.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of National Education• Ministry of Culture and Tourism• Ministry of Youth and Sports• Ministry of Family, Labor and Social Services
High Level Implementation Steps	<p>The maturity of Smart Resident Component will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing the Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for the Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization. Efforts will be made to expand Smart Resident applications in local governments.</p> <ol style="list-style-type: none">1. Policies will be developed for the consciously use of technology, social campaigns will be organized and social protection and responsibility projects will be implemented.2. Smart City oriented activities will be carried out in order to raise awareness and to maintain the awareness of belonging to the city, ownership of the city, participation in city institutions and dealing with city problems among the residents living in the city.3. Studies will be carried out to reduce the digital divide between different segments of society and to encourage and increase the use of technology.



	<ol style="list-style-type: none">4. Improvement of education at pre-school, primary, secondary and high school level and adaptation to the requirements of Smart Cities will be ensured.5. Improvement of undergraduate and graduate education and adaptation to the requirements of Smart Cities will be ensured.6. The quality and quantity of services for families, women, children and young people will be increased by Smart City solutions.7. Services for the poor, homeless and orphans will be improved by Smart City applications.8. Smart City oriented activities will be carried out for the effective integration of disabled and elderly people into social and economic life.9. Smart applications will be developed in the social, cultural, artistic and sports areas of the city for people to live a high quality, productive and entertaining life.10. Smart City solutions will be produced to ensure that individuals with different lifestyles and relativity will live in a peaceful and productive way with harmonising to a common ground in cities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• It will be ensured that the society consists of conscious and productive people.• It will be ensured that people and groups who need special protection and support in order to reach modern living conditions in terms of physiological, psychological, sociological, economic and cultural aspects will benefit from social protection and services in social security.• People with different experiences, belongings and identities will be able to find the lowest common denominator in the city's spatial and intellectual common ground and create a culture.• The cities will be able to meet the social and cultural needs and expectations of its residents.
Widespread Impact Level	High
Ease of Application Level	Very difficult
Criticality Level of Action	High Critical



(15.6) MATURITY OF THE COMPONENT OF SMART TRANSPORTATION WILL BE INCREASED.

Action Identifier	15.6
Action Name	Maturity of The Component of Smart Transportation will be Increased.
Short Description	To increase the maturity of the component of the Smart Transportation in cities, which is defined by Smart City Maturity Assessment applications to enable Smart City Transformation through the use of Smart City Technology Portfolio and the National Smart City Solution Portfolio; the use of the next generation vehicles and transportation models and support for accessibility in transportation, development of transportation infrastructure, emergency and logistics management will be provided.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Transport and Infrastructure-General Directorate of Communication• Ministry of Environment and Urbanization- General Directorate of Local Governments
High Level Implementation Steps	<p>The maturity of Smart Transportation Component will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. The dissemination of new generation environmentally friendly (with alternative power system) means of transportation will be ensured with the whole life cycle.2. In addition to the combined use of different transportation modes developed as an alternative to classical transportation methods, the widespread use of next-generation transportation models addressing innovative approaches will be ensured.3. Within the scope of emergency transportation management, the widespread use of information systems that provide traffic light routing and automatic detection of cases will be ensured in order to provide the rapid transportation of priority vehicles in traffic as required.



	<ol style="list-style-type: none">4. To ensure accessibility in transit, all segments on the transportation network will be foreseen for smooth and easy use, as well as advance notification of transportation options and widespread use of applications for disabled people.5. Infrastructure that supports Smart Transportation Systems will be deployed.6. Activities intended for transportation governance will be conducted at the national, regional and local level for organization, resource management, planning and implementation, operational maintenance, monitoring evaluation, sustainability, interoperability, service management and coordination among stakeholders.7. Data-driven logistics management will be undertaken, based on needs, that embraces the generation supply chains that provide forward and reverse flows of goods, services and related information between production point and consumption points.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Coordination will be provided between the studies carried out in line with the strategies for Smart City and the studies conducted in line with the strategies for the Smart Transportation Systems.• Efficient and environmentally friendly use of transportation systems will be ensured.• The use of domestic technologies developed by national capabilities will contribute to the country's economy.• The impact of transportation vehicles on environmental pollution will be reduced and the economy will be contributed by low fuel consumption and electric vehicles.• In emergency, transportation halt will be prevented and the vehicles such as fire brigades, ambulances, etc. will be prioritized, reducing loss and damage.• Accessibility will be ensured in urban and interurban transportation by allowing disabled passengers and users to travel easily in traffic and within the transportation network, including pedestrian roads and sidewalks.• In Turkey, transportation infrastructure planning and implementation will be provided to improve transportation security and ensure sustainable mobility.• The establishment of logistics centers will ensure an economic and effective logistics management.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	Very High Critical



(15.7) MATURITY OF THE COMPONENT OF SMART BUILDING WILL BE INCREASED.

Action Identifier	15.7
Action Name	Maturity of The Component of Smart Building will be Increased.
Short Description	In order to increase Smart Buildings component maturity determined by Smart City Maturity Assessment applications in cities to achieve Smart City transformation by using Smart City Technology Portfolio and National Smart City Solution Portfolio; building security, emergency, energy, waste management, building air-conditioning systems and integrated design will be used for building design by using building information modeling and taking into account environmentally friendly green buildings.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization - General Directorate of Construction• Ministry of Environment and Urbanization - General Directorate of Local Governments• Ministry of Environment and Urbanization - General Directorate of Professional Services
High Level Implementation Steps	<p>The maturity level of Smart Building Component will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of governance of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between the National and Local Smart City Ecosystem stakeholders and action responsible and related institutions and organizations will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. With the use of adaptive ventilation systems in buildings, the optimum air temperature will be adjusted automatically and indoor air quality will be increased and consumption will be reduced.2. The integration of the recognition and security systems used in buildings with each other and the provision of user information will be ensured to increase the building safety.3. Emergency and early warning systems used in buildings will provide the fastest response in extraordinary situations and minimize losses in case of disasters.4. Renewable energy systems and smart lighting systems will be used to increase the number of environmentally friendly green buildings.5. In the national, regional and local layer; building governance will be ensured with the functions of organization, resource management, planning and implementation, operation maintenance, monitoring and evaluation, sustainability, interoperability,



	<p>service management and inter-stakeholder coordination and existing structures will be developed.</p> <p>6. An integrated waste infrastructure will be established in the buildings and effective waste management and recovery will be ensured.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Building energy efficiency and effective resource utilization will be ensured.• Energy efficient and green certified buildings will be expanded.• Wastes in buildings will be reduced to zero.• The use of domestic technologies developed with national capabilities will contribute to the national economy.• Internal and external security of buildings will be increased.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(15.8) MATURITY OF THE COMPONENT OF SMART HEALTH WILL BE INCREASED.

Action Identifier	15.8
Action Name	Maturity of The Component of Smart Health will be Increased.
Short Description	In cities, Smart City Technology Portfolio and National Smart City Solution Portfolio will be utilized to increase the maturity of the component of Smart Health determined by Smart City Maturity Assessment Applications in the transformation of cities \ in Smart City.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Health• Ministry of Agriculture and Forestry• Ministry of Environment and Urbanization- General Directorate of Local Governments
High Level Implementation Steps	<p>The Maturity of the Component of the Smart Health Will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of governance of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders on national and local levels. The activities to be carried out within this scope will be performed under the policy ownership of the assets and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local Administration of Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. The use of Smart City Solutions to improve public health will be ensured.2. Protective and preventive health Applications will be disseminated within the focus of Smart City.3. Studies will be conducted to improve treatment services with Smart City solutions.4. As part of emergency healthcare, integration with other Smart City will be enhanced health services will be improved using Smart City Solutions.5. Studies will be conducted to improve health accessibility with Smart City solution.6. Improvements will be made in health governance using Smart City Solutions.7. Health investments and their financing will be supported by Smart City Solutions.8. For foreign people, health services will be improved through Smart City applications.9. Audit activities in the healthcare area will be developed using Smart City Solutions.10. Health tourism will be improved by using Smart City Solutions.
Planned Start and End Dates	2020-1 2023-2



Expected Benefits	<ul style="list-style-type: none">• Health awareness of individuals will be increased.• Integrated and effective health services will be provided with Smart City Components.• Health accessibility will be increased.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	High Critical



(15.9) MATURITY OF THE COMPONENT OF DISASTER AND EMERGENCY MANAGEMENT WILL BE INCREASED.

Action Identifier	15.9
Action Name	Maturity of The Component of Disaster and Emergency Management will be Increased.
Short Description	Efforts will be made to increase the maturity of the Disaster and Emergency Management component determined within the scope of Smart City Maturity Assessment applications in order to ensure the transformation of cities in cities by making use of Smart City Technology Portfolio and National Smart City Solution Portfolio.
Responsible Institutions and Organizations	<ul style="list-style-type: none">Disaster and Emergency Management Directorate (AFAD)Ministry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<p>The maturity of Disaster and Emergency Management Component will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of Ministry of Environment and Urbanization</p> <ol style="list-style-type: none">In line with the needs in Smart City field, damage and risk mitigation works will be carried out by using Smart City Solutions.Planning activities related to emergency and disaster management will be improved by using Smart City Solutions.Within the scope of disaster and emergency response process, improvement activities will be realized with Smart City Applications.Effectiveness enhancement activities will be realized by using Smart City Solutions within the scope of disaster and emergency recovery process.Improvement activities will be realized by using Smart City Solutions within the scope of civil defence management.Within the scope of local disaster and emergency management, studies will be carried out in Smart City focus.



	7. Within the scope of disaster and emergency governance, studies will be carried out in the focus of Smart City.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Collaboration in disaster and emergency management will be improved in cities.• Within the scope of Smart City Solutions, solutions for Disaster and Emergency Management component will be developed.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	High Critical



(15.10) MATURITY OF THE COMPONENT OF SMART SECURITY WILL BE INCREASED.

Action Identifier	15.10
Action Name	Maturity of The Component of Smart Security will be Increased.
Short Description	In order to increase the Smart Buildings component maturity determined by the Smart City Maturity Assessment applications in cities to achieve Smart City transformation by using Smart City Technology Portfolio and National Smart City Solution Portfolio, security management will be carried out with physical security technologies, protecting citizens against crime and providing disaster management, collecting, monitoring, analyzing security data with sensors and predicting potential asymmetric and hybrid threats.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Interior - Department of Internal Security Strategies• Ministry of Environment and Urbanization - General Directorate of Local Governments
High Level Implementation Steps	<p>The maturity level of Smart Building Component will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of governance of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local government of the Ministry of Environment and Urban Affairs.</p> <ol style="list-style-type: none">1. Physical Security Information Management System will be established in which integrated Smart Security applications and devices operate and can be controlled via user interface.2. Models will be developed that bring security software, innovative solutions and solutions needed in the field of physical security.3. Image processing and data analysis will be performed with new generation and smart video cameras.4. Recognition, detection and location detection will be provided by the use of sensors to detect and transmit incident sites to central systems.5. Secure communication infrastructures with fast communication will be established.6. In the national, regional and local layer; organization, resource management, planning and implementation, operation maintenance, monitoring and evaluation, sustainability,



	<p>interoperability, service management, inter-stakeholder coordination and emergency security and Security Governance will be provided.</p> <p>7. Safe areas will be established on the shores and at the air, land and railway borders with the underwater and surface sensor network.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart city solutions will increase city security.• Quality of life will be improved.• Security perception of citizens will be improved with Smart City Solutions.• The use of domestic technologies developed with national capabilities will contribute to the national economy.• Use of Smart City Solutions on border security and immigration control will be increased.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	High Critical



(15.11) MATURITY OF THE COMPONENT OF INFORMATION AND COMMUNICATION TECHNOLOGIES WILL BE INCREASED.

Action Identifier	15.11
Action Name	Maturity of The Component of Information and Communication Technologies will be Increased.
Short Description	In cities, studies will be performed to increase the maturity of the component of the Information and Communication Technologies (ICT) defined by Smart City Maturity Assessment applications to enable Smart City Transformation through the use of Smart City Technology Portfolio and the National Smart City Solution Portfolio.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Transport and Infrastructure• Information and Communication Technologies Authority
High Level Implementation Steps	<p>The maturity of Information and Communication Technologies (ICT) will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders on national and local levels. The activities to be carried out within this scope will be performed under the policy ownership of the assets and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local Administration of Ministry of Environment and Urbanization. Efforts will be made to disseminate economic applications in local governments.</p> <ol style="list-style-type: none">1. The maturity of applications within Information Technology (IT) will be increased.<ul style="list-style-type: none">• Information Technology Device Management• Data Processing and Analysis Infrastructure• Internet of Things• New Technologies and Approaches• Green Information Technologies• Information Technologies Protocols2. The maturity of applications within Communication Technology (CT) will be increased.<ul style="list-style-type: none">• Communication Technologies Device Management• Network Access• Network Transfer• Communication Technologies Protocols



	3. The expertise and issues in the area of Information and Communication Technologies will be able to move together, the maturity of information and communication technologies governance will be increased through impact analysis When the need for change occurs and integrated management.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart City transformation will ensure that the ICT infrastructure is ready.• The exchange of information and interoperability between the different will be increased.• Awareness of the integration of Information and Communication Technologies and technology independence will increase.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	Highly Critical



(15.12) MATURITY OF THE COMPONENT OF SMART SPATIAL MANAGEMENT WILL BE INCREASED.

Action Identifier	15.12
Action Name	Maturity of The Component of Smart Spatial Management will be Increased.
Short Description	To increase the maturity of the component of the Smart Spatial Management in cities, which is defined by Smart City Maturity Assessment Applications to enable Smart City Transformation through the use of Smart City Technology Portfolio and the National Smart City Solution Portfolio; digital data and expertise-based planning Applications will be put in place, appropriate design standards and legislation studies will be conducted, awareness among stakeholders will be increased using simulation and augmented reality technologies in Urban Transformation Areas, and the impacts of planning decisions can be foreseen.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Local Governments• Ministry of Environment and Urbanization- General Directorate of Infrastructure and City Services• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Ministry of Environment and Urbanization- General Directorate of Spatial Management• Ministry of Environment and Urbanization- General Directorate of National Real Estate• Ministry of Environment and Urbanization- General Directorate of Protection of Natural Assets• Ministry of Environment and Urbanization- General Directorate of Construction Affairs
High Level Implementation Steps	<p>The Maturity of Smart Spatial Management will be increased by implementing Smart City Solutions to be used under the following context by utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities of spatial management of the Local Governments and inputs will be provided to Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio of the state-of-the-art technologies. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders on national and local levels. The activities to be carried out within this scope will be performed under the policy ownership of the assets and organizations responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local Administration of Ministry of Environment and Urbanization. Efforts will be made to disseminate spatial management Applications in local governments.</p> <ol style="list-style-type: none">1. Implementation and dissemination of digital data and expertise-based planning practice will be ensured. Within this context;



	<ul style="list-style-type: none">• Data obtained from Smart systems will be evaluated in the planning process.• Spatial planning standards will be redefined based on digital data and expertise.• In order to evaluate the spatial impacts of Smart City applications, legislative work will be carried out based on data and expertise. <p>2. Compatibility with building regulations in urban development and settled areas will be ensured by using information technologies:</p> <ul style="list-style-type: none">• Smart management models for building units, building blocks, mass housing and neighborhoods will be determined.• Access problems of disadvantaged groups of society will be taken into account.• Depending on the features of the urban design area, the objectives, principles, approaches and techniques related to all kinds of physical-spatial arrangements for implementation will be determined.• Dissemination of mixed use approach in urban development and settled areas will be ensured. Urban facilities will be handled on a neighbourhood basis.• Simulation technologies will be used for urban design projects.• Land valuation studies will be carried out with an objective approach using geographic information systems techniques.• It will be ensured that a spatial inventory system combining different expertise will be put in place for the determination of protected areas, natural values and biological diversity. <p>3. Smart City applications will be used to improve urban transformation processes:</p> <ul style="list-style-type: none">• The information and analyzes towards improving and giving identity to the urban areas at risk of disasters, degraded and collapsed urban areas and regions with historical and cultural values will be obtained from the Urban Information Systems by considering their economic, social, physical and environmental conditions.• 3D visualization and augmented reality applications will be used to raise awareness towards urban transformation planning activities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Urban transformation will contribute to overcome existing problems of cities by generating healthy urban parts.• Coordination will be provided in planning decisions.• With the data-oriented planning approach, planning of the physical environment will be ensured in line with objectives and needs.• It will contribute to the preservation of historical, local and natural values.• Self-sufficient, sustainable and livable cities will be established.



	<ul style="list-style-type: none">• It will contribute to construction of disaster resilient settlements and prevention of potential damages.• It will contribute to the development of a data-oriented, smart management approach in the urban transformation areas.• It will enable to reveal the potential of urban parts with historical and cultural values.• With Urban Transformation, social and technical infrastructure limits will be eliminated in the reconstructed areas.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of the Action	High Critical



(15.13) MATURITY OF THE COMPONENT OF GEOGRAPHIC INFORMATION SYSTEMS WILL BE INCREASED.

Action Identifier	15.13
Action Name	Maturity of The Component of Geographic Information Systems will be Increased.
Short Description	In order to increase the maturity of the Geographic Information System (GIS) component determined by Smart City Maturity Assessment practices in cities to achieve Smart City transformation by making use of Smart City Technology Portfolio and National Smart City Solution Portfolio; geographic data will be shared according to TUCBS standards by public institutions, which are responsible to produce these data, compliance with geographic data quality components during geographic data production, GIS usage will be expanded and its integration will be ensured and appropriate capacity increase activities will be carried out.
Responsible Institutions and Organizations	The Ministry of Environment And Urbanization- General Directorate of Geographic Information Systems
High Level Implementation Steps	<p>Utilizing Smart City Technology Portfolio and National Smart City Solution Portfolio in the activities related to geographic information system of local governments, the maturity of Geographic Information Systems component will be increased by means of implementing Smart City Solutions which can be used within the following scope, and with these solutions, the new technologies developed and utilized in the same will be ensured to be entered into Smart City Technology Portfolio, National Smart City Solution Portfolio and Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders on national and local levels. The activities to be carried in this scope will be developed under the policy ownership of the institutions and organizations that are responsible for the action. The necessary coordination between the National and Local Smart City Ecosystem stakeholders and the related institutions and organizations responsible for the action will be governed by the Directorate General of Local government of the Ministry of Environment and Urban Affairs. Efforts will be put into work for dissemination the geographic information system applications in local governments.</p> <ul style="list-style-type: none">• It will be ensured that the public institutions producing Geographic Data share the data they produce regarding the data themes they are responsible in accordance with TUCBS standards.• Data quality in geographic data production towards wide participation decision making and economic development will be provided and geographic data will be



	<p>shared with local governments, central administration units, private sector and citizen via employing network services.</p> <ul style="list-style-type: none">• Coordination between public institutions producing geographic data will be ensured.• Geographic data shared in the Geoportal environment will be shared according to TUCBS Network Services Standards.• The production and service of metadata belonging to the produced geographica data will be ensured.• The use of Geographic Information Systems within all public and local governments will be disseminated.• Activities will be carried out to increase human resource capacity in the field of Geographic Information Systems.• Hardware and software requirements will be met to expand the Geographic Information Systems infrastructure in public, private sector, local government and universities.• Geographic data from smart systems (such as sensors) will be acquired and processed.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Compliance with TUCBS Infrastructure in Smart City transformation will contribute to the development of a common language related to geographic information systems in Smart City transformation.• Duplicate data production and conducting identical projects will be prevented.• Contribution to the efficient use of public resources will be contributed.• Coordination will be provided in terms of data exchange among public institutions.• Service satisfaction will be contributed towards the users of geographic data.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of Action	Medium Critical



(15.14) MATURITY OF THE COMPONENT OF SMART INFRASTRUCTURE WILL BE INCREASED.

Action Identifier	15.14
Action Name	Maturity of The Component of Smart Infrastructure will be Increased.
Short Description	Infrastructure governance will be conducted to increase the maturity of the Smart Infrastructure Component in cities, which is defined by Smart City Maturity Assessment applications to enable Smart City Transformation through the use of Smart City Technology Portfolio and the National Smart City Solution Portfolio, considering planning and implementation, sustainability, operation and maintenance, monitoring, evaluation and change, interoperability and safety.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Infrastructure and City Services• Ministry of Transport and Infrastructure• Ministry of Agriculture and Forestry
High Level Implementation Steps	<p>The maturity of Smart Infrastructure Component will be increased by the implementation of Smart City Solutions that can be used in the following context by utilizing Smart City Technology Portfolio and the National Smart City Solution Portfolio in the governance activities of local governments and with these solutions, the new technologies developed and used in the solutions will be input for Smart City Technology Portfolio, The National Smart City Solution Portfolio and the Local Smart City Solution Portfolio. Smart City Solutions can be implemented by all Smart City Ecosystem stakeholders at national and local levels. The activities to be carried out within this scope will be realized under the policy ownership of the institutions and organizations responsible for the action. Necessary coordination between National and Local Smart City Ecosystem stakeholders and institutions and organizations responsible for the action, will be carried out by the General Directorate of Local Governments of the Ministry of Environment and Urbanization.</p> <ol style="list-style-type: none">1. Coordination will be increased in planning and implementation activities within the scope of urban infrastructure governance and activities will be carried out for effective planning.2. Sustainability of city services offered with urban infrastructure will be ensured in a continuous and healthy way by considering existing resources and evaluating possible needs and problems.3. Operating and maintenance activities for the city infrastructure will be carried out regularly and will be maintained in a healthy and safe manner.4. Monitoring and evaluation activities for urban infrastructure will be carried out regularly and in accordance with changing conditions.



	<p>5. Integrated management of city infrastructures belonging to different Smart City Will be ensured to work together.</p> <p>6. The protection of the city infrastructure and the elimination of the related risks will be ensured by providing integrated security.</p>
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Integrated infrastructure management will develop an integrated view of urban infrastructure.• Resources will be used effectively by carrying out more comprehensive analyses for urban infrastructure.• Effective planning can be done by preventing duplicate infrastructure investment.• Effective infrastructure operation and maintenance activities and cost-effective and uninterrupted city services will be offered.• Smart City transformation will be accelerated by providing and integrating infrastructure activities in a standard structure.
Widespread Impact Level	Medium
Ease of Application Level	Difficult
Criticality Level of the Action	High Critical



(16) SMART CITY TERMINOLOGY, SMART CITY DATA DICTIONARY, INTEROPERABILITY MODEL AND REFERENCE ARCHITECTURAL MODEL WILL BE CREATED.

Action Identifier	16
Action Name	Smart City Terminology, Smart City Data Dictionary, Smart City Interoperability Model and Reference Architectural Model will be Created.
Short Description	Smart City Terminology will be created that includes descriptions of Smart City Capabilities and entities associated with these capabilities. A Smart City Data Dictionary will be prepared to ensure that information about these capabilities and entities are managed in the data layer. Interoperability Model and Reference Architectural Model including interoperability of these entities in the national and local layers and inter-agency relations will be developed. The studies will be conducted with the participation of stakeholders.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Terminology will be defined in order to develop a common understanding of Smart City Capabilities and the physical, spatial, digital and humanitarian entities involved in these capabilities and the knowledge provided by them. In this context, the data constituting the information about Smart City Capabilities and the entities in these capabilities will be defined by Smart City Data Dictionary. Data sets will be created through data conceptual models using Smart City Data Dictionary. Data identification, production, management and exchange standards will be determined.2. Using Smart City Terminology, interoperability of entities in terms of semantics, organizational, legal, strategic, physical and technological aspects will be defined by Smart City Interoperability Model.3. In accordance with Smart City Interoperability Model, a Turkey-specific Reference Architectural Model will be created that can be used as a standard in Smart City structuring of cities, where all entities in the business, data, application, technology layers are evaluated together and a single structure is gained. In Reference Architectural Model, an environment will be presented, where the status of entities as local and national will be taken into account. Reference Architectural Model will be compatible with Smart City Maturity Assessment Model.4. Sustainability of Terminology, Dictionary, Interoperability Model and Reference Architectural Model will be ensured.
Planned Start and End Dates	2020-2 2022-2
Expected Benefits	<ul style="list-style-type: none">• A common language and structure related to Smart City will be established.



	<ul style="list-style-type: none">• Integrated management of business, data, application and technology layers in Smart City field will be ensured.• Smart City transformation will be structured and the related activities will be accelerated.• The impact of the changes within Smart City on the whole can be considered as central.
Widespread Impact Level	Medium
Ease of Application Level	Very Difficult
Criticality Level of the Action	High Critical



(17) THE NATIONAL SMART CITY ARCHITECTURE AND NATIONAL SMART CITY DATA EXCHANGE GOVERNANCE PLATFORM WILL BE DEVELOPED, AND ITS FUNCTIONALITY AND SUSTAINABILITY WILL BE ENSURED.

Action Identifier	17
Action Name	The National Smart City Architecture and National Smart City Data Exchange Governance Platform will be Developed, and its Functionality and Sustainability will be Ensured.
Short Description	National Smart City Architecture will be created based on Reference Architectural Model. National Smart City Data Exchange Governance Platform will be developed by using National Smart City Architecture, where the data within the scope of the activities performed central government institutions and organizations will be exchanged according to the defined standards. It will be ensured that the Platform can work with Local Data Exchange Platforms and TUCBS Infrastructure and Smart City Solutions are compatible with the Platform.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. Smart City Capabilities of the central government institutions and organizations and the entities involved in these capabilities will be defined as National Smart City Architecture based on Reference Architectural Model. With Architecture, data sets will be identified in a single structure to manage Smart City Capabilities and entities involved in these capabilities, as well as information related and provided by those capabilities and entities. Through the standards to be developed, definitions related to integration, interface and interoperability will be made and situations related to them will be monitored.2. The National Smart City Data Exchange Governance Platform with open source will be developed, where the data in the National Smart City Architecture is exchanged in accordance with the developed standards. Platform information security governance mechanism will be established. The functionality and sustainability of the Platform will be ensured.3. The interface, integration, interoperability definitions between the Local Data Exchange Platforms and the National Smart City Data Exchange Governance Platform, and validation and authorization mechanisms will be established taking the requirements for the protection of government secrets, trade secrets and personal data into account.4. Alignment of integration, interoperability of Smart City Solutions with the National Smart City Data Exchange Governance Platform and Local Data Exchange Platforms will be ensured.5. The exchange of data within the scope of the services offered by the private sector offering service in the national scale within the city services provided by central



	<p>government institutions and organizations will be performed with the National Smart City Data Exchange Governance Platform.</p> <p>6. Issues related to the management and obligation to use of the National Smart City Data Exchange Governance Platform will be regulated by legislation.</p>
Planned Start and End Dates	2020-2 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart City Capabilities managed by central government institutions and organizations and the entities involved in these capabilities and the information related and provided by these capabilities and entities will be managed with a standard structure.• The interface, integration, interoperability between Smart City Capabilities managed by central government institutions and organizations and the entities involved in these capabilities and the information provided by them will be managed in a standard, integrated, agile and secure manner.• Standard and secure common data exchange between the National Smart City Data Exchange Governance Platform and Local Data Exchange Platforms will be ensured.• The co-creation environment will be created with the principle of open governance and the development of Smart City Solutions will be facilitated.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of the Action	Very High Critical



(18) LOCAL SMART CITY ARCHITECTURE AND DATA EXCHANGE PLATFORMS WILL BE ESTABLISHED, AND ITS FUNCTIONALITY AND SUSTAINABILITY WILL BE ENSURED.

Action Identifier	18
Action Name	Local Smart City Architecture and Data Exchange Platforms will be Created, and its Functionality and Sustainability will be Provided.
Short Description	Local Smart City Architecture will be created for each province based on Reference Architectural Model. A Reference Local Data Exchange Platform will be developed to ensure common data exchange in a standard and secure fashion. Local Data Exchange Platforms will be established according to Local Smart City Architectures on a provincial basis by using Reference Platform and functionality and sustainability will be ensured.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">1. Individually for each province, in accordance with the National Smart City Architecture, Smart City Capabilities and entities in the central and local government institutions and organizations and the private sector will be defined as Local Smart City Architecture in a single structure based on Reference Architectural Model. Data sets will be identified and managed for the purpose of managing the information provided by and related Smart City Capabilities specific to Local Smart City Architecture and National Smart City Architecture and the entities involved in these capabilities. In this context, studies on integration, interface and interoperability will be carried out in accordance with the standards developed in the national layer.2. The Open Source Reference Local Data Exchange Platform will be developed by Ministry of Environment and Urbanization, where the data in the Local Smart City Architecture is exchanged in accordance with the standards. Local Data Exchange Platforms will be established by using Reference Platform in line with the Local Smart City Architectures on a provincial basis and its functionality, sustainability and use on a county basis will be ensured. The information security governance mechanism for the platforms will be established in accordance with the studies carried out in the national layer.3. The interface, integration, interoperability established between the Local Data Exchange Platforms and the National Smart City Data Exchange Governance Platform will be provided in accordance with the standards set in the national layer in line with the requirements for the protection of government secrets, trade secrets and personal data. Verification and authorization mechanisms will operate in accordance with those standards.



	4. Issues related to the installation, management and obligation to use Local Data Exchange Platforms using Reference Local Data Exchange Platform will be regulated by legislation.
Planned Start and End Dates	2021-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart City Capabilities and entities are included in these capabilities on a provincial basis and they will be managed in a standard structure related to and provided by the National Smart City Architecture.• The interface, integration, interoperability between Smart City Capabilities on a provincial basis and all entities involved in these capabilities will be managed in an integrated, agile and secure manner with a common understanding.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of the Action	High Critical



(19) NATIONAL AND LOCAL SMART CITY OPEN DATA PLATFORMS WILL BE ESTABLISHED AND ITS OPERATION AND SUSTAINABILITY WILL BE ENSURED.

Action Identifier	19
Action Name	National and Local Smart City Open Data Platforms will be established, and its Operation and Sustainability will be ensured.
Short Description	National and Local Open Data Platforms will be developed where the data included in the scope of the National Smart City Data Exchange Governance Platform and Local Data Exchange Platforms will be made available and shared and analyzed in accordance with the developed standards in a secure manner; functionality and sustainability will be ensured with the governance mechanism to be established.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">1. National open data strategies and policies will be defined by determining the motivation for open data studies to be conducted in Smart City field by the organization responsible for the open data function defined in the National Smart City Governance Mechanism. Local open data strategies and policies will be defined by the responsible organization for the open data function defined in the Local Smart City Governance Mechanism on a country-by-province basis, consistent with national open data strategies and policies.2. By the organizational structure defined within the scope of the National Smart City Governance Mechanism to make it open using the data exchanged with the National Smart City Data Exchange Governance Platform;<ul style="list-style-type: none">• Open datasets,• Open data metadata,• Open data standards,• Open data exchange standards,• The process of making data open,• Value generated in data creation,• The cost required to create the data,• Licensing terms <p>The national open data governance mechanism will be determined. A National Smart City Open Data Platform will be established that complies with the requirements of this mechanism and tools will be developed to ensure the use of open data through this Platform. Likewise, local open data governance mechanisms will be established by addressing the above issues separately for each province and Local Smart City Open Data Platforms that comply with the requirements within the scope of local open data governance mechanisms</p>



	<p>will be created in order to clarify the data exchanged in Local Data Exchange Platforms by the organizational structure defined within the scope of Local Smart City Governance Mechanisms. Tools that enable the use of open data through these Platforms will be developed and Platforms that will be created on a provincial basis will be used on a country-by-district basis. Open data studies to be carried out in the local layer will be carried out considering national studies and in a coherent manner. The functionality and sustainability of the National and Local Smart City Open Data Platforms will be ensured. The National and Local Smart City Open Data Platforms will include the tools that enable big data and data analysis studies to be carried out.</p> <p>3. During the process of making data open, use of the data, ownership, production and quality of the data, state secret, trade secret, protection of personal data, intellectual and industrial property rights and information security will be considered and necessary legislative activities will be carried out.</p> <p>4. Promotion, awareness and capacity building activities related to open data policies, Platform, governance mechanism, tools and legislation will be carried out in the national and local layers.</p>
Planned Start and End Dates	2021-2 2023-2
Expected Benefits	<ul style="list-style-type: none">• Innovative and value-adding Smart City Solutions can be developed by creating an appropriate infrastructure for the use of data produced by central government, local government and the private sector and included in the scope of National and Local Smart City Architecture.• Make the data open and use of the data will contribute to the provision of better quality city service.• Effective and efficient city service will be provided with the help of input of the data to the decision support mechanisms,• Open governance approach will be contributed by ensuring transparency and accountability.• Academic benefit will be provided by creating an open data repository that can be used in scientific studies.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of the Action	Medium Critical



(20) SERVICE DELIVERY CHANNELS WILL BE IMPROVED AND DIVERSITY INCREASED TO EXPAND THE USE OF CITY SERVICES IN WHICH SMART CITY SOLUTIONS ARE USED.

Action Identifier	20
Action Name	Service Delivery Channels will be Improved and Diversity Increased to Expand the Use of City Services In Which Smart City Solutions Are Used.
Short Description	In order to ensure the widespread use of city services using Smart City Solutions, necessary activities will be carried out and existing delivery channels will be improved to cover different user profiles and new presentation channels will be created.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Ministry of Environment and Urbanization- General Directorate of Local Governments• Ministry of Family, Labour and Social Services
High Level Implementation Steps	<ol style="list-style-type: none">1. The existing delivery channels will be improved by considering the user profiles requirements of city services using Smart City Solution.2. Target audience analyses will be carried out to determine the diversity of user profiles.3. With the participation of stakeholders, new service delivery models that meet the needs and expectations for city services will be developed by considering user profiles.<ul style="list-style-type: none">• Appropriate content and models for Turkey will be determined by examining international samples.• Pilot applications of the preferred models will be carried out.• Plans (such as training, human resources, promotion/information) will be made for the dissemination of the models.• It will be ensured that the target audience will be informed about the identified models.4. City services using Smart City Solution will be rearranged to cover all disadvantaged groups:<ul style="list-style-type: none">• The needs and expectations of disadvantaged groups, especially those with mobility limitations, will be identified and service delivery channels that can meet these needs and expectations will be implemented.• The Accessibility and Availability Standard will be prepared and its legislation and standards will be used in the planning, project, construction and manufacturing processes.• Accessibility levels will be evaluated and necessary improvements will be made.



	<ul style="list-style-type: none">• Accessibility of services will be ensured under existing accessibility standards and legislation and guidance will be provided on accessibility with guidance documents.• Awareness raising activities will be carried out. <p>5. In order to ensure that city services using Smart City Solution are preferred primarily:</p> <ul style="list-style-type: none">• Research activities will be carried out to determine the reasons why they are not preferred and the necessary improvements will be made.• Necessary studies will be carried out on issues such as information security and protection of personal data, illuminating materials will be prepared and information and awareness activities (such as public spot images, raising awareness through social media) will be carried out on various platforms.• Incentive mechanisms will be developed for residents who prefer city services using Smart City Solution.
Planned Start and End Dates	2020-1 2022-2
Expected Benefits	<ul style="list-style-type: none">• A large part of society will benefit from city services using Smart City Solutions by covering disadvantaged groups.• Smart City Solutions will improve the existence and accessibility of city services.• Smart City Solutions will increase user satisfaction with city services used.• Smart City Solutions will contribute to the sustainability of Smart City transformation by ensuring the widespread use of city services.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	Medium Critical



(21) PROMOTIONAL CHANNELS FOR CITY SERVICES IN WHICH SMART CITY SOLUTIONS ARE USED WILL BE DIVERSIFIED.

Action Identifier	21
Action Name	Promotional Channels for City Services In Which Smart City Solutions Are Used Will Be Diversified.
Short Description	Promotional channels (such as radio, television, internet) for city services using Smart City Solutions will be strengthened by using audio-visual materials designed according to various user profiles and activities will be carried out to raise all users' awareness of Smart City Solutions.
Responsible Institutions and Organizations	Ministry of Environment and Urbanization- General Directorate of Geographic Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. User profile creation activities will be carried out for city services using Smart City Solution.2. Information strategies that differ according to user profiles and channel usage preferences will be developed.3. Promotion and information channels will be developed or improved in line with the determined strategies.4. Promotion and information channels will be developed in collaboration with all stakeholders, considering the characteristics, priorities and requirements of disadvantaged residents.5. Smart City Solutions Information Platform will be prepared to promote and inform services using Smart City Solutions in cities.
Planned Start and End Dates	2020-1 2021-2
Expected Benefits	<ul style="list-style-type: none">• Awareness of Smart City will be increased.• The use of services using Smart City Solutions will be expanded.• The widespread use of the services used in Smart City Solutions by all segments of the society will improve the quality of life of the society.
Widespread Impact Level	High
Ease of Application Level	Medium



Criticality Level of the Action	Medium Critical
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(22) ENVIRONMENTS THAT ALLOW THE TRANSFORMATION OF RESIDENTS TO SMART CITY SOLUTION PRODUCERS WILL BE CREATED.

Action Identifier	22
Action Name	Environments that Allow the Transformation of Residents to Smart City Solution Producers will be Created.
Short Description	Environments will be developed and studies will be carried out that will enable the residents to produce solutions in Smart City transformation by increasing their capacity in Smart Cities area.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Ministry of Industry and Technology
High Level Implementation Steps	<ol style="list-style-type: none">1. Urban Mind Centers will be designed as living labs, pilot applications will be established and spread throughout the country.<ul style="list-style-type: none">• An environment of exchange of ideas will be created to increase awareness, knowledge and experience of residents, Smart City service users and employees involved in the delivery of city services in the field of Smart Cities and to create innovation.• Environments where innovative ideas are modelled will be created.• Public facilitation environments will be designed in the centers that enable competence to be gained in innovative approaches and the centers will serve as incubators. In this context, entrepreneurship ecosystem will be established, coaching and support activities will be planned and implemented.• The environment will be provided for testing the solutions developed by the residents.• In order to commercialize the solutions produced in the Urban Mind Center, environment will be created in which it will be presented to the outside world.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Citizens with high awareness in Smart Cities area will be able to create leverage effect in Smart City transformation.• Within the scope of mass resource use, the production of Smart City Solutions will ensure the intellectual and actual involvement of the residents and acceleration of social acceptance.• By enabling different ideas in the field of Smart Cities, it will be ensured that innovative products, services and activities are put into practice and product creation will create commercial and social value.



Widespread Impact Level	High
Ease of Application Level	Medium
Criticality Level of the Action	Medium Critical



(23) SMART CITY INFORMATION SECURITY GOVERNANCE MECHANISM AND ORGANIZATION WILL BE ESTABLISHED.

Action Identifier	23
Action Name	Smart City Information Security Governance Mechanism and Organization will be established.
Short Description	Smart City Information Security Governance Mechanism and Organization will be established at national and local levels in order to ensure information security in Smart City field.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Transport and Infrastructure• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems• Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">1. Smart City Capabilities and assets involved in these capabilities, as well as the data provided by and/or related to them, will be evaluated by the data owner in terms of information security. Related measures will be identified and implemented on the basis of control points considering the critical levels.2. Legislative arrangements will be made for Smart City Information Security Governance Mechanism and Organization.3. The functionality of Smart City Information Security Governance Mechanism and Organization will be ensured in the national and local layers.4. Information security research and development programs will be established in Smart City field and human resource capacity will be improved.5. Market formation will be provided for information security needs in Smart City field.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• Smart City information security maturity will be increased.• Smart City information security governance will be legally guaranteed.• Information security awareness will be increased.
Widespread Impact Level	High
Ease of Application Level	Difficult
Criticality Level of the Action	Medium Critical



(24) THE PROTECTION OF PERSONAL DATA CREATED AND USED WITHIN THE SCOPE OF SMART CITY WILL BE PROVIDED.

Action Identifier	24
Action Name	The Protection of Personal Data Created and Used within the Scope of Smart City will be provided.
Short Description	Determining, classifying and protecting the personal data created and used within the scope of Smart City and carrying out the necessary regulatory studies.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Personal Data Protection Authority• Ministry of Environment and Urbanization- General Directorate of Local Governments• Ministry of Environment and Urbanization- General Directorate of Geographic Information Systems
High Level Implementation Steps	<ol style="list-style-type: none">1. The personal data generated and used within Smart City will be determined, then the level of criticality will be evaluated in terms of confidentiality and privacy.2. Necessary control points and associated measures will be determined and implemented in order to protect it by considering the critical levels.3. Authentication and process steps will be secured to ensure identity and personal data security.4. Smart City applications will be implemented and operated in accordance with the legislation on the protection of personal data. Secondary legislation will be established if necessary. The international compatibility of the legislation and its impact on the implementation of Turkey will be evaluated and necessary measures will be taken in this regard.
Planned Start and End Dates	2020-1 2021-2
Expected Benefits	<ul style="list-style-type: none">• User safety will be ensured in Smart City Services.• The level of user acceptance will be increased with user confidence in Smart City services.• Participation in Smart City services will increase the functionality of the services.• Personal data will be protected as a national value.
Widespread Impact Level	High
Ease of Application Level	Very Difficult
Criticality Level of the Action	High Critical





(25) PARTICIPATION OF USERS ON THE USE OF SMART CITY SOLUTIONS IN THE DEVELOPMENT AND IMPROVEMENT OF CITY SERVICES WILL BE INCREASED.

Action Identifier	25
Action Name	Participation of Users on the Use of Smart City Solutions in the Development and Improvement of City Services Will Be Increased.
Short Description	The number, diversity and inclusiveness of participation mechanisms to ensure stakeholder engagement will be increased to ensure the adoption, preference, social adaptation and widespread use of Smart City Solutions.
Responsible Institutions and Organizations	<ul style="list-style-type: none">Ministry of Environment and Urbanization- General Directorate of Geographic Information SystemsMinistry of Environment and Urbanization- General Directorate of Local Governments
High Level Implementation Steps	<ol style="list-style-type: none">Successful participation mechanisms in Turkey and the world will be examined to ensure the participation of stakeholders in the use of Smart City Solutions in city services.Participation mechanisms covering all segments of society, including disadvantaged groups, will be developed, implemented, and publicity and information works will be carried out for the development, use and improvement of Smart City Solutions in city services.
Planned Start and End Dates	2020-1 2021-2
Expected Benefits	<ul style="list-style-type: none">Open governance including stakeholder perspective will be ensured in the development and improvement of services where Smart City Solutions are used.Through the inclusion of stakeholders in the development and improvement of services where Smart City Solutions are used, adoption of Smart City Solutions will be ensured and spread quickly and easily.
Widespread Impact Level	Medium
Ease of Application Level	Medium
Criticality Level of the Action	Medium Critical



**(26) URBAN TRANSFORMATION AND URBAN DEVELOPMENT AREAS WILL BE
EVALUATED AS SMART REGIONS.**

Action Identifier	26
Action Name	Urban Transformation and Urban Development Areas will be evaluated as Smart Regions.
Short Description	It is the creation of Smart Regions by evaluating the areas of urban transformation and urban development, which enable the progress of a culture of integrated development with the advancement of Smart City Solutions, which provide access to ecosystem stakeholders, and provide a test environment for the implementation of Smart City Solutions.
Responsible Institutions and Organizations	<ul style="list-style-type: none">• Ministry of Environment and Urbanization- General Directorate of Spatial Management• Ministry of Environment and Urbanization- General Directorate of Infrastructure and City Services
High Level Implementation Steps	<ol style="list-style-type: none">1. Identified urban transformation and urban development areas will be considered as Smart Regions:<ul style="list-style-type: none">• Smart City Solution Laboratories will be established in the city, which enables the progress of culture of integrated development through providing interaction between technology manufacturers and solution providers operating in the public and private sector.• Smart Zones will provide technology manufacturers and solution providers with testing environments• Pioneering, innovative and future-oriented urban development research projects will be realized in Smart Regions.• In Smart Regions, exhibition halls where Smart City Solutions can be promoted will be created and opportunities for on-site examine will be created through activities that raise awareness for Smart Cities.
Planned Start and End Dates	2020-1 2023-2
Expected Benefits	<ul style="list-style-type: none">• A culture of integrated development will be created.• Continuity of open innovation will be ensured.• With the transformation of the under used places of the city, public value will be created.• Efficient use of resources will be ensured.
Widespread Impact Level	High
Ease of Application Level	Medium



Criticality Level of the Action	Medium Critical
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4 MONITORING, EVALUATION AND CHANGE MANAGEMENT

This section describes the National Smart Cities Monitoring Evaluation Model established for activities related to monitoring, evaluation and change management of the Strategy and Action Plan to be carried out to meet the need to achieve the vision set out in the 2020-2023 National Smart Cities Strategy and Action Plan to monitor and evaluate the progress of actions, and the Change Management planned to be carried out within this scope.

4.1 MONITORING EVALUATION MODEL

The measurement method to be used within the scope of the Monitoring Evaluation Model will be the main tool to enable Smart City Ecosystem stakeholders to periodically measure and evaluate the achievement of the Action Plan success criteria and performance indicators of actions and the development status of actions during the Action Plan implementation phase. The implementation of this method aims to follow the final success of the Action Plan.

Measurement assets under the measurement method defined in accordance with the conceptual hierarchy of “strategic goal, objective and action” concepts planned for the Strategy and Action Plan;

- “Action Plan Success Criteria”,
- “Action Development Statuses”,
- “Performance Indicators” of Actions

are included. These measurement assets to be monitored for the monitoring periods and their relationships are shown in the following figure:

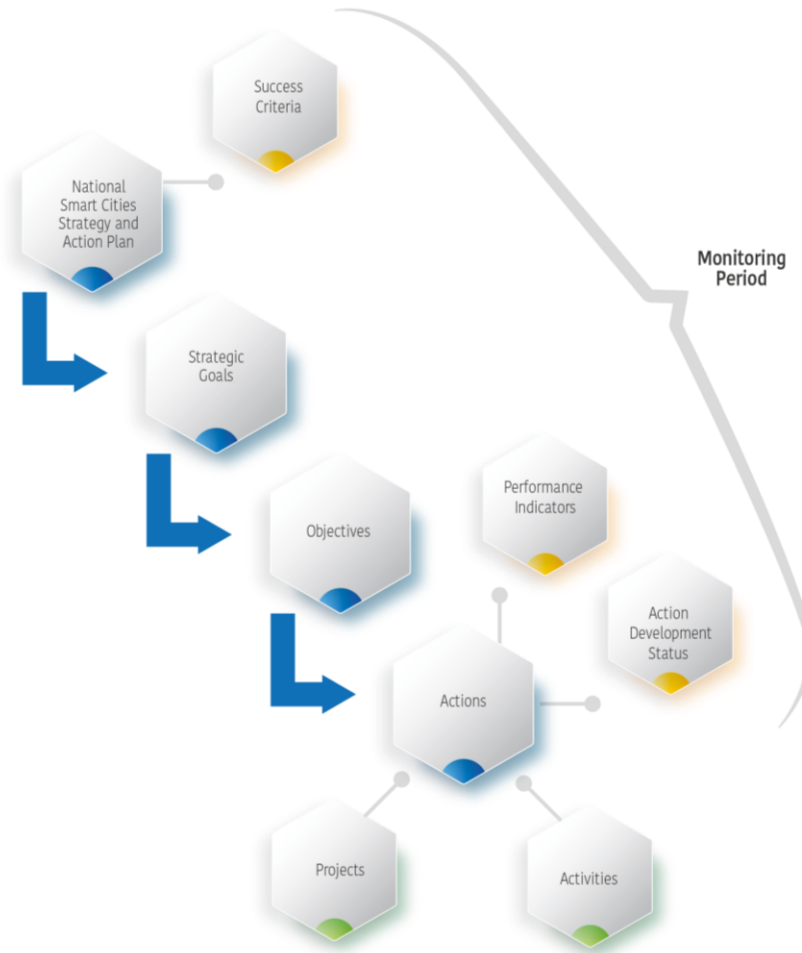


Figure 10. Monitoring Evaluation Model Measurement Assets

Performance indicators created in the breakdown of actions and success criteria have been determined.

Monitoring Evaluation Model aims to monitor the final success by periodically measuring the Action Plan and evaluating the measurement results. Through regular monitoring and evaluation at certain time intervals, it is planned to contribute to continuous improvement motivation at institutional and supra-institutional level.

Monitoring Evaluation System (SEPIDS) will be used for the systematic collection of the data that will form the basis of the Monitoring Evaluation Model and for the effective conduct of monitoring activities. Performance information and monitoring activities will be carried out through SEPIDS by performing the data inputs expected from the institutions/organizations through SEPIDS in the same structure during the monitoring periods.

4.2 MONITORING EVALUATION PROCESS

2020-2023 National Smart Cities Strategy and Action Plan monitoring, measurement and evaluation activities will be carried out in accordance with the implementation plan to be established for the Action Plan and on the basis of

6-months monitoring (periods. The activities to be carried out during the monitoring periods are grouped under 3 main headings:



Figure 11. 2020-2023 National Smart Cities Strategy and Action Plan Monitoring Period Activities

Following are the steps to be carried out for monitoring period activities with the beginning of monitoring period:

- **Data Input via SEPIDS:**
 - **Project/Activity Input:** Name, description and type information will be entered to plan and monitor the project/activities carried out for the actions.
 - **Project/Activity Development Status Data Input:** Percentages for development status will be entered in order to monitor the progress of actions.
 - **Targeted and Actual Data Input for Performance Indicators:** The performance indicators set for actions are assigned to the respective monitoring periods depending on the action start and end dates. During the monitoring periods, the actual values of the performance indicators whose targeted values are assigned will be entered by the Data Input Official role.
 - **Targeted and Actual Data Input for Success Criteria:** The success criteria set for the Action Plan are assigned to the related monitoring periods. During the monitoring periods, the actual values of the success criteria whose values are assigned by the Institutional Authority role will be entered.
 - **Risk/Issue Data Input:** Risk/problem information for actions will be entered by the Institutional Authority and Data Input Official roles.
- **Verification and Measurement:**
 - **Control and Verification Activities over Data Inputs:** Periodic information verification will be carried out with institutions/organizations on the data entered by the Data Input Official role for the studies carried out during the monitoring period.
 - **Measurements via SEPIDS:** Action Plan Success Criteria Status, Performance Indicator Success Status, Action Performance and Triple Level Performance, Action Development Status (ADS) will be measured.
 - **Analysis of Measurement Results:** Measurement results of SEPIDS and verified data inputs will be analyzed and evaluated.



- **Periodic Monitoring and Evaluation:** At the end of each monitoring period, at the Periodic Monitoring Evaluation meeting will be organized with the participation of the responsible and related institutions/organizations by the Institutional Authority role, an overall evaluation will be made by taking advantage of the measurement results over the data entries monitored with SEPIDS:
 - **Periodic Monitoring Evaluation Meeting Preparatory Work:** Before the Periodic Monitoring Evaluation Meeting, the necessary preparatory works (such as determination of the meeting schedule, determination of participants) will be carried out. Meeting information will be notified to meeting participants by creating an event through SEPIDS.
 - **Preparation of Periodic Monitoring Evaluation Report:** Periodic Monitoring Evaluation Report containing the measurement results analysis will be prepared and shared with the responsible and related institutions/organizations.
 - **Conducting the Periodic Monitoring Evaluation Meeting:** A general evaluation of the monitoring period will be made through the report at the Periodic Monitoring Evaluation Meeting to be held with the participation of the responsible and related institutions/organizations. Within the scope of this evaluation, the foreseen changes related to the Action Plan will be identified. In addition, the targeted values for the new monitoring period will be reviewed and the necessary updates will be determined. In these meetings, environments where sample Smart City applications are shared can be provided.
 - **Sharing Monitoring Period Results:** Following the Periodic Monitoring Evaluation Meeting, the Periodic Monitoring Evaluation Report will be updated and published in line with the revision needs that may occur at all levels throughout the Action Plan, for evaluating the institutions/organizations for the completed monitoring period, sharing the latest situation and problematic situations related to the actions, along with opinions and suggestions for maintaining the implementation phase at the planned speed, purpose and effectively. General information of the related monitoring period will be shared regularly and transparently with related stakeholders through Smart Cities Information Sharing Portal and monitoring period will be closed.

4.3 CHANGE MANAGEMENT

Considering the current conditions, public institutions and local governments are affected by various factors such as economic, social, political, environmental, financial, technological. This interaction involves structural or sharp changes as well as instantaneous changes. It is an important issue to follow the direction of change in the field of activity and to be able to control the risks arising from change in terms of management. From a similar point of view, the "Change Management" process has been defined to meet the need to keep pace with the changing dynamics of the 2020-2023 National Smart Cities Strategy and Action Plan, which is closely concerned with stakeholders in Smart Cities Ecosystem (such as central government, local governments, private sector, universities, non-governmental organizations, citizens, professional organizations), to manage change in a controlled manner and to carry out the processes related to change in a healthy way.



By the change management process created to meet the change needs arising from the implementation of the Monitoring Evaluation Model and the 2020-2023 National Smart Cities Strategy and Action Plan;

- More efficient realization as a whole,
- The smooth implementation of the actions included,
- Achieving strategic goals and objectives more effectively,
- Supporting with Monitoring Evaluation System,
- Healthy coordination of the change-oriented communication channel

are intended. It is aimed with Change Management that Strategy and Action Plan has a structure that can be adapted at a similar pace to the new conditions to be encountered between 2020-2023 and can be followed up with a high success rate and a defined process. In line with this objective; it is envisaged to manage the change needs related to the Strategy and Action Plan communicated by the responsible and related institutions/organizations, identified during the monitoring period or arising for any reason.

Due to the multidimensional and dynamic structure of change, the basic framework of change management has been created by considering integrated and systematic approaches in order to evaluate all the elements together. It has been noted that the triple classification structure, which is expressed with the conceptual hierarchy of "strategic goal, objective and action" in the Strategy and Action Plan, is also included in the change management mechanism in the following breakdown:

- Change of assets, vision and strategic goals in the national level related to Smart City Ecosystem at macro level,
- Change of assets related to objectives at mezzo level,
- Change of assets related to actions at micro level,

Change Management is planned in a broad framework that includes all changes that may be covered in Smart Cities Ecosystem. From this point of view, it is envisaged that the change management process should include changes that occur or are planned to occur in situations such as the area of responsibility of the responsible institutions/organizations, organizational structure, business processes, budget, human and physical resources, and the level of technology needed when carrying out actions, legal infrastructure and legislation, financial situations in the institutions/organizations and local governments.

4.4 CHANGE MANAGEMENT PROCESS

Transactions need to be carried out within a controlled process to ensure effective, efficient, dynamic, integrated implementation of change management, clear recording of changes and recording of historical information. The process steps for change management are as follows:



Figure 12. Change Management Process

- **Identification of Change Need:** It is the stage of identifying the change. At this stage, the change requirements are recorded in order to fully explain the need for change and to discuss the detected or anticipated change without delay. It is possible to determine changes at all levels in the hierarchy of triple concepts. For example, changes requested by the responsible and related institution (s) or determined by the role of Institutional Authority, changes identified in line with the views of the role of Change Evaluation and situations determined by the role of High Level Political Ownership
- **Evaluation about Change Need:** The second stage is to examine the effect of the changes determined in the first stage by considering the principles of size and priority and to determine the effect results. The effect of the change is grouped into 4 levels as low, medium, high and prohibitive.
- **Determination of the Change Decision:** The third stage is the stage where the decision is made for the acceptance/rejection of the change. According to the level of changes detected as a result of the impact assessment made by the Institutional Authority role;
 - Acceptance/rejection decision of low and medium changes is made by the Institutional Authority role.
 - Acceptance/rejection of high and prohibitive changes is transferred to the Change Evaluation role for evaluation at the Change Evaluation meeting by the Institutional Authority role. The meeting provides an evaluation of the decisions regarding the changes at this level.The decision information about the changes decided to accept/reject is recorded.
- **Implementation of the Change Decision:** The fourth stage is the planning and implementation of the work that needs to be done in line with the decision on change. At this stage, related changes are made to the Strategy and Action Plan. The related transactions are recorded in order to establish the traceability of the changed and updated information with the change request.
- **Ensuring Communication:** In order to share and maintain the continuity of the transactions related to the change between the parties, the communication must exist uninterruptedly within an order. It is important to keep stakeholders equally informed about change records and to share this information transparently. A controlled communication network needs to be structured so that the information that is the focus of communication, such as the source of change, the domain, the implementation calendar, the evaluation process and the outcome, can be clearly understood by stakeholders. For this reason, at this stage; information about the change request decided is announced and communicated to the related parties.



- **Control/Monitoring of the Decision:** In the final stage, changes reflected in the Strategy and Action Plan will be closely monitored within the scope of monitoring and evaluation activities. In addition to the step of control/monitoring the decision, change management activities will be monitored and controlled with a predetermined schedule at Change Evaluation Meetings.

5 MATURITY ASSESSMENT MODEL

Smart City Maturity Assessment Model is a cascaded reference model ensuring the assessment and improvement of maturity levels of cities on the Smart City management and applications. By utilizing the Smart City Maturity Assessment Model, it is aimed at achieving the Smart Cities structure on the intended maturity level for the city by means of applications and processes within the scope of analyzing the reliable and sustainable production of the required outputs of the city assets. Accordingly, the Smart City Maturity Assessment Model was created with the purpose to steer the Smart City works in Turkey systematically, while ensuring the same to have a structure specific to the opportunities and conditions of our country. The created model is not only in compliance with the current national policies, it also considers the international examples.

5.1 MODEL STRUCTURE

Accordingly, the Smart City Maturity Assessment Model has been created under a structure showing the current status of the city in the Smart City transformation process through the status indicators, assessing the maturity level of Activity Fields within the competence-component-capability breakdown on readiness and effectiveness aspects, as well as showing the effects of Smart City works on the city through the Impact indicators:



Figure 13. General Structure of Smart City Maturity Assessment Model

The terms used in the general structure of Smart City Maturity Assessment Model can be described as follows:

- **Status** comprises of indicators identifying the current status of the city in the Smart City transformation process.
- **Activity Field** comprises of activities carried out within the scope of Smart City transformation.
- **Impact** comprises of indicators identifying the impact imposed by the Smart City works & studies on the city.

The presentation method is utilized on the information obtained for the performance indicators while showing the Status and Impact in the Model. The components and capabilities have been identified under the competences

within the aspect of Activity Field. The term “**Capability**” in this perspective can be defined as the abilities obtained/to be obtained by the cities or required/to be required for implementing the Smart City works & studies in line with a pre-identified purpose. The term “**Component**”, on the other hand, can be described as groups comprising of capabilities serving to the same asset.

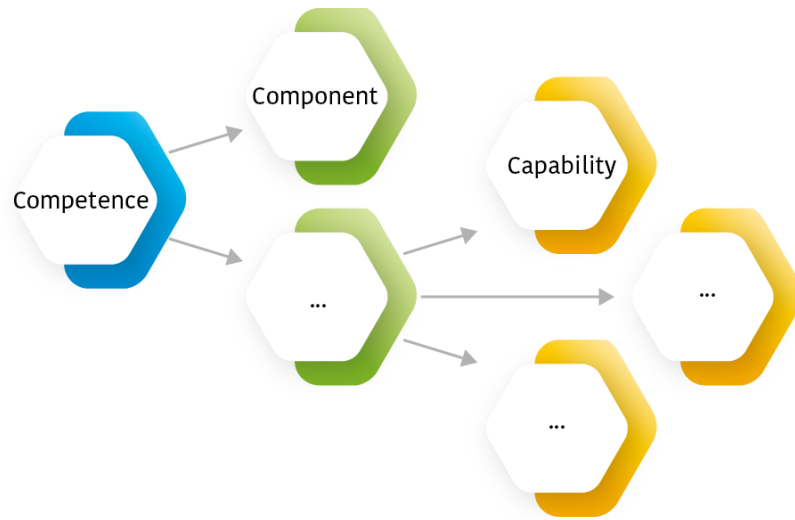


Figure 14. Structure of Activity Fields of Smart City Maturity Level Assessment Model

The structure of the activity fields in the Model has been created as statusd in Figure 1 in accordance with the structure identified in National Smarty Cities Strategy and Action Plan. For the interviews to be performed for the assessment of city within the scope of the Activity Field aspect in the model, the Question&Answer method has been adopted through the related questions set. With this purpose in mind, a questions set has been prepared for the Activity Field, which have been projected to be utilized during the interviews.

5.2 GOVERNANCE MECHANISM OF THE MATURITY ASSESSMENT MODEL

The following process is followed with the purpose to identify the maturity level of cities by means of using the Smart City Maturity Assessment Model:

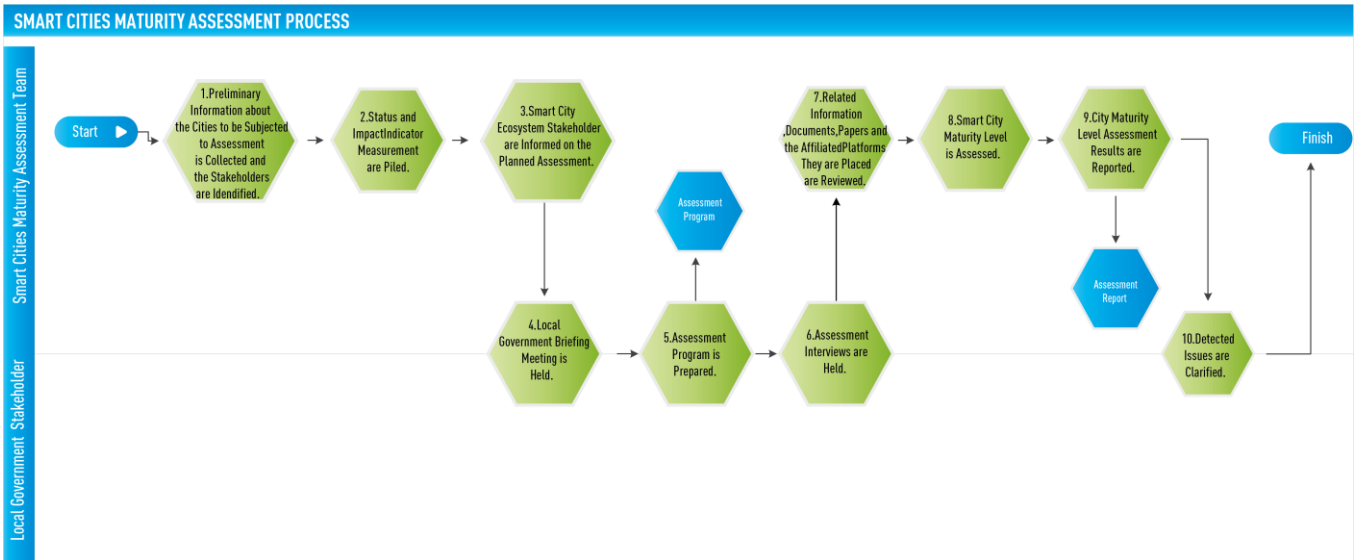


Figure 15. Smart City Maturity Assessment Process

The Smart City maturity level obtained within the scope of the activity fields, along with the measurements acquired with regards to the Status and Impact assessments are gathered in the assessment report. Radar graphics are used for showing the Smart City maturity level. Showing up of the example radar graphics is as follows:



Figure 16. Example of Smart City Maturity Assessment Model Capabilities



The findings obtained based on the answers for the questions asked with regards the capabilities within the scope of activity fields are classified as strong and open for development, and solutions are provided to increase the Smart City maturity level as a result of its application findings open for development. The content of the assessment report prepared by the Smart City Maturity Assessment Team is as follows:

- Purpose and scope of assessment
- Roles and responsibilities related to organizations, units and individuals involved in the assessment process
- Participant and calendar information related to assessment interviews
- Information, documents, papers and platforms examined
- General information about Smart City applications of the city
- “Status” display via performance indicators
- Capability, Component, Competence and Smart City Maturity Levels Assessment
- “Impact” display through performance indicators
- Solution proposal offered through detected findings that are strong and open to improvement

In the report excluded capabilities and solutions are specified, when the characteristics and needs of local government are taken into consideration and with the information that relevant studies at national level will be started with the announcement of National Smart Cities Strategy and Action Plan.



6 TERMS

ACTION NO	TERM	DESCRIPTION
General	Service Provider	The local government, central government or private sector organizations assigned with a duty within the scope of the development and providing of city services where Smart City solution is utilized.
General	Service User	The users that benefit from the city services where Smart City solution is utilized.
General	City Service	The services that are provided either individually or within a collaboration by central government institutions and organizations, municipalities, municipal institutions and organizations, private sector.
General	Open Governance	A governance system established by means of rendering all the data, processes and services open through transparency, accountability, participation and collaboration principles.
General	Resident	The citizens of a city, immigrants, tourists visiting the City, along with the employees working in local government, central government and private sector.
General	Asset	The software, hardware, etc, of value to the respective organization, which are deemed required to be managed within the scope of Smart City
General	Policy	The entire procedure of principles established by the State with regards to the regulation and actualization of aim, method and content (TLI). These can be summarized as the policies, strategic goals, objectives and actions within the scope of 2020-2023 National Smart Cities Strategy and Action Plan.
General	Smart City Capability	The skills of an organization, individual or a system within the scope of Smart City Components. The capabilities are generalized and expressed through high level terms. It is deemed required to gather the combination of organization, people, process and asset (physical, spatial, digital and humanitarian) for gaining a capability. For example, waste water management, real time and dynamic crossroad management are recognized as Smart City Capability.
General	Technology	The technologies used for implementation of Smart City Capabilities.
General	Smart City Application	The implemented version of developed solutions in the city.
General	Collaboration	The process of coming up with a solution through the voluntary mutual interaction among Smart City Ecosystem stakeholders.



ACTION NO	TERM	DESCRIPTION
General	Interoperability	The ability of systems within Smart City to perform data exchange between each other by means of interpreting the data without the need of a manual intervention.
General	Local government	The public legal asset and local government elected by the public meeting the common local needs the same who live in the province or village or under the governance of municipality (TIL).
General	Solution Provider	The stakeholders assigned within the scope of the development and implementation of Smart City Solutions (central government, local government, universities, private sector, nongovernmental organizations).
General	Technology Producer	The stakeholders producing the Technologies utilized for implementation of Smart City Capabilities (central government, local government, universities, private sector, nongovernmental organizations).
1	Local Smart City Roadmap	The Plan where the actions required for implementation of Smart City strategies on local level, the roles of the stakeholders held responsible for these actions, governance with collaboration are involved.
1	Local Smart City Program	The Schedule where Smart City Projects and activities planned to be implemented within the Local Smart City Roadmap are calendared in a manner including the priorities and the relations between each other and includes how these projects and activities will be implemented
1	Local Smart City Strategy	Smart City strategies drawn up by the cities by means of taking the characteristics of the city into consideration and prioritizing the priorities of the city.
2	Smart City Maturity Development Program	The program designed by means of city's maturity level assessment and priorities of Smart City Capabilities in the national level as well as ensuring that the city gets to the next maturity level in line with the city-specific strategies along with the national strategies and policies.
2	Intercity Guidance Mechanism	Taking into consideration the maturity levels of cities, it is the mechanism established to determine the rules for the guidance and financing of cities with high maturity levels to less mature cities.
2	Sustainable Smart City Guidance Program	The program prepared for clarifying the guidance scope to be provided for each grup, as well as identifying the city groups receiving guidance and consultancy through Intercity Guidance Mechanism.



ACTION NO	TERM	DESCRIPTION
3	Smart City Maturity Assessment Model	The measuring model based on the needs that are specific to Turkey with the purpose to present a roadmap for ensuring the measuring, evaluating, comparing and improving the maturity of Cities within the scope of Smart Cities on a standard basis and aimly in a manner covering Smart City Components within the breakdown of Smart City Capabilities.
3	Smart City Index	The index that includes the ranking of cities whose maturity levels are determined by applying Smart City Maturity Assessment Model to cities.
3	Smart City Maturity Level	Smart City maturity levels determined by applying Smart City Maturity Assessment Model to cities.
4	National Smart City Strategy and Action Plan Monitoring and Evaluation Model	A model developed to monitor, evaluate and report the success of the National Smart Cities Strategy and Action Plan and the development status and performance of the actions included in Smart Cities Strategy and Action Plan within a defined process and systematic method.
4	National Smart City Program	A program in which Smart City Projects and activities planned for the implementation of the National Smart Cities Strategy and Action Plan are scheduled to include priorities and relationships between them.
4	National Smart City Action Plan	The body of actions drawn up in a manner covering a certain period within the national layer with the purpose to guide the studies/works to be carried out in Turkey within the Smart City field.
5	Local Smart City Projects Portfolio	The portfolio in which the information related to City-specific completed or ongoing Smart City Projects is managed on the basis of capabilities within the Local Smart City Architecture.
5	National Smart City Projects Portfolio	The portfolio in which the information on non-city specific, completed or ongoing Smart City Projects is managed on the basis of National Smart City Architecture capabilities.
5	Smart City Projects Preparation Standard	The standard that is created to facilitate the preparation of Smart City Projects and to provide a common structure, covering basic project details and governance information.
5	National Smart City Projects List	The list of Smart City Projects that are not specific to the city.
5	Local Smart City Projects List	The list of city-specific Smart City Projects.
5	Smart City Projects	The body of specific and comprehensive activities aimed at implementing a defined Smart City Solution.



ACTION NO	TERM	DESCRIPTION
6	Smart City Investment and Implementation Monitoring Portal	The portal where Smart City investments and implementations planned by the public are followed-up, monitored and evaluated
8	Smart City Technology Radar	The classification of promoted, suggested, not-suggested technologies by means of grading the technologies within Smart City Technology Portfolio in line with a model based on Smart City Capabilities.
8	Smart City Technology Portfolio	The list of technologies, including the attributes of these technologies, used in existing Smart City solutions, and technologies that have not yet been used, but are proposed to be used, on the basis of Smart City Capabilities.
8	Technologic Risk List	A list of the risks associated with the technologies included in the National Smart City Technology Radar.
9	Smart City Marketplace	The platform that provides information on acquisition for those in need and the suppliers in the cities' Smart City transformation, while enabling the provision of Smart City Solutions, as well.
10	National Smart City Organization	The institutions and organizations that are granted with the power and held responsible for performing the functions in Smart City governance mechanism on the national layer.
10	National Smart City Governance Mechanism	A transparent and accountable management structure in which national, responsible and / or related institutions and organizations and citizens can participate in mutual interaction and collaboration by providing broad-based active participation.
10	Smart City Legislations	The legislation in which the institutions and organizations to be included in the Local Smart City Governance Mechanism and Organization structure, their duties, authorities and responsibilities, the roles of the experts to be employed in these institutions, the structure, processes and business rules related to the governance between the institutions are defined.
10	Regional Smart City Governance Mechanism	A transparent, accountable governance structure prioritizing the characteristics of the region, in which those authorized within the scope of Smart City activities on regional level and/or institutions and organizations, citizens that are empowered in Local governments with neighbouring local governments participate actively.



ACTION NO	TERM	DESCRIPTION
11	Local Smart City Organization	The institutions and organizations that are authorized and responsible for performing the functions included in Smart City Governance Mechanism in the local layer.
11	Local Smart City Governance Mechanism	A transparent, accountable governance structure prioritizing the characteristics of the region, in which those authorized within the scope of Smart City activities on regional level and/or institutions and organizations, citizens that are empowered on local level participate actively, interact with each other and act in collaboration.
11	Contribution to City Portal	The integrated model of city operation in which residents have a say and participate in the decisions taken about the city.
11	Stakeholder Map	The notation that identifies Local Smart City Ecosystem stakeholders and defines inter-stakeholder interaction.
11	City Participation Mechanisms	The mechanisms that enable existing and potential users of the services using Smart City Solutions to take part in the development and improvement of city services.
11	Smart City Stakeholder Interaction Program	The calendar where the interactions regulated for collaboration, learning and experience exchange between ecosystem stakeholders are managed.
11	Local Smart City Board	The organization comprising of the political leaders and all the ecosystem stakeholders' top management that represent the top level political and bureaucratic will in the Local Smart City Ecosystem, while on the other hand ensuring the requirements of Local Smart City Strategy and Roadmap to be duly met.
12	Service Catalog	A document/database/list where the city services being provided (For which Smart City Solutions are/aren't used), the basic information related to such services, along with the contract persons for such services are available.
13	Smart City Competency Assessment Model	The role-based measuring model for the skills related to the human power to be employed in the Smart City field.
14	Smart City Knowledge Sharing Platform	The online platform created for information exchange between the ecosystem stakeholders on the works and studies carried out in Smart Cities field.
14	National Smart City Network	The interaction environment where the local governments can voluntarily participate, provide information, experience and support, as well as producing mutual projects.



ACTION NO	TERM	DESCRIPTION
15	Local Smart City Solution List	The list of solutions that are specific to the city, and which are implemented for meeting Smart City requirements in the cities.
15	National Smart City Solution List	The list where Smart City solutions implemented in cities are handled and defined collectively
15	Local Smart City Solution Portfolio	The Local Smart City Solution List that is addressed on the basis of Smart City Capabilities within the Local Smart City Architecture.
15	National Smart City Solution Portfolio	The National Smart City Solution List that is addressed on the basis of Smart City Capabilities within the National Smart City Architecture.
15	Smart City Solution Assessment Model	The model where the quantitatively up-to-date data is used based on Smart City Capabilities, which aims to evaluate Smart City Solutions by simulation in order to estimate the future impact.
15	Smart City Solution	The technology/technologies which can be utilized for a work scenario objectiveed to be fulfilled in order to solve a problem or meet a requirement.
16	Smart City Interoperability Model	The model comprising of Smart City Capabilities on national and local level, interoperability of the assets in these capabilities and the relations between the assets.
16	Smart City Terminology	The terminology defined for developing a common understanding with respect to Smart City Capabilities, the physical, spatial, digital and humanitarian assets in these capabilities, including the information related to and provided by these capabilities and assets.
16	Smart City Data Dictionary	The dictionary where Smart City Capabilities, along with the data comprising the information related to the assets in these capabilities are defined.
16	Reference Architectural Model	The architecture model specific to Turkey, which is projected to be used as standard in Smart City Structure of all the cities, where all the assets within the business, data, application, technology layers are evaluated as a whole and configured as a single structure in line with Smart City Interoperability Model.
17	National Smart City Data Exchange Governance Platform	The platform where the data within the scope of the assets of central government institutions and organizations, along with the activities by these organizations is exchanged using the National Smart City Architecture in line with the recognized standards.



ACTION NO	TERM	DESCRIPTION
17	National Smart City Architecture	The architecture where Smart City capabilities of central government institutions and organizations, along with the assets in these capabilities, are defined as a single structure based on the Reference Architecture Model. Data sets will be defined and governed for managing the Architecture and Smart City Capabilities, the assets in these capabilities, information within and related to these capabilities and assets.
17	Smart City Solutions Joint Management Model	The system where the conformance to open protocols and interoperability of Smart City Solutions are centrally confirmed.
17	Data Exchange Standard	The body of rules to be followed for sharing data within the National and Local Smart City Architectures.
17	Interoperability Standard	The body of rules related to the interface, integration and interoperability for ensuring data exchange.
17	Data Standard	The body of rules ensuring that the data in the National and Local Smart City Architectures is defined on a structural basis.
18	Reference Local Data Exchange Platform	The reference platform developed as centrally open source code with the aim to perform the data exchange in Local Smart City Architecture (data exchange) in line with the related standards. Local Data Exchange Platforms will be established using the Reference Data Exchange Platform in line with the Provincial Local Smart City Architectures
18	Local Data Exchange Platform	The platform on which the data in the Local Smart City Architecture will be exchanged (data exchange) in accordance with the standards based on the Reference Local Data Exchange Platform.
18	Local Smart City Architecture	A separate architecture for each province, where the central and local government institutions and organizations and the private sector Smart City Capabilities and the assets contained in these capabilities will be defined in accordance with the National Smart City Architecture, based on the reference architectural model. Data sets will be defined and managed to govern the information provided by and associated with Smart City Capabilities and the assets included in those capabilities of the Local Smart City Architecture and the National Smart City Architecture.
19	National Smart City Open Data Platform	The platform on which data within the scope of National Smart City Data Exchange Governance Platform will be open, shared and analyzed in accordance with developed standards and on a secure basis.



ACTION NO	TERM	DESCRIPTION
19	Local Smart City Open Data Platform	The platform on which data within the scope of Provincial Smart City Data Exchange Platform will be open, shared and analyzed in accordance with developed standards and on a secure basis.
21	Smart City Solutions Information Platform	The portal that promotes and provides information about city services in which Smart City Solutions are used.
22	Living Lab	An experience, research and innovation environment that enables the community to experience the true added value of new products and services for the development, testing and improvement of Smart City Solutions with real users in real environments.
22	City Mind Center	The environment in which the solutions provided by the residents will be presented to the external world for commercialization.
23	Smart City Information Security Governance Mechanism and Organization	The mechanism by which the information security policies, assets, controls, governance and organization of the critical infrastructures related to the activities that are carried out at the national and local level with the risk management approach are defined.
26	Smart Regions	The urban transformation areas that enable the advancement of a culture of development by enabling the interaction of local residents and technology producers and solution providers with the private sector, and the culture of development in collaboration of the city, developing Smart City Solutions with research projects that adopt an open innovation approach and providing test environment for the implementation of these solutions.
26	Smart City Solution Lab	The environment that enables the interaction of the residents with the technology producers and solution providers operating in the local government and the private sector for Smart City Solutions and ensures the development of a culture of development in collaboration within the city.