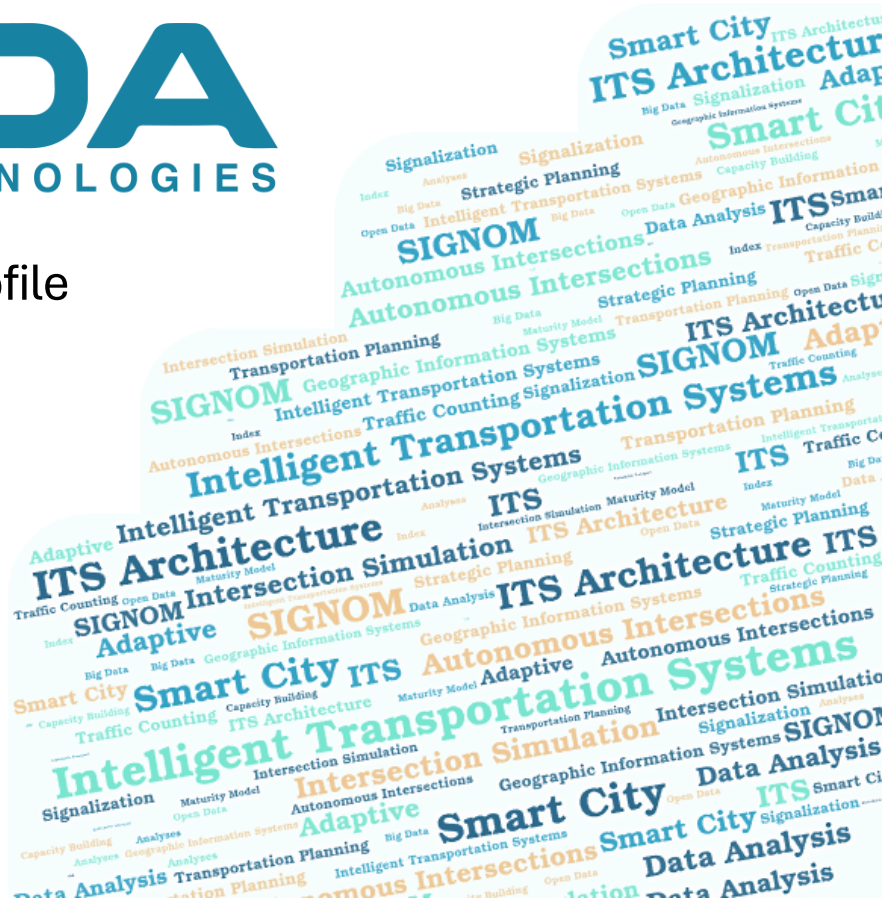
HiNDA

SMART CITY TECHNOLOGIES

Company Profile



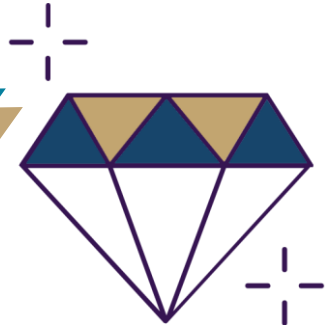
Company Profile Content

About Us

HINDA has been working on **consultancy** and **technology development** on **Smart City Technologies** since 2019. In recent years, it has focused on **open data**, **big data** and **artificial intelligence technologies**.

While producing these technologies, it reflects its **experience** in GIS to its projects. HINDA has **significant experience** in Smart City, Smart Transportation, Sustainable Transportation, GIS, Open Data, Big Data and Artificial Intelligence.

Vision and Mission



Vision

Our vision is to **export** our fully **domestic** and **national products** to **at least one** of the Middle East, Central Asia, Eastern Europe and North Africa regions within 3 years. In 5 years, our vision is to be the **pioneer of the sector** in the field of **ITS software** in Turkey. Our goals include the increased use of smart city technologies, the widespread use of **environmentally friendly** transportation vehicles and the development of **energy-saving** applications.

Mission

Our mission is to provide solutions in the fields of Smart City and Intelligent Transportation, first in Turkey and then in our near geography, with domestic and national products that we produce with our **innovative software technologies**. While promoting the adoption of smart city technologies that **add value** to our customers, we focus on the spread of **intelligent** and **sustainable** transportation and the development of **environmentally friendly** applications that support **energy saving.**

Executive Team

Fatih Kafalı

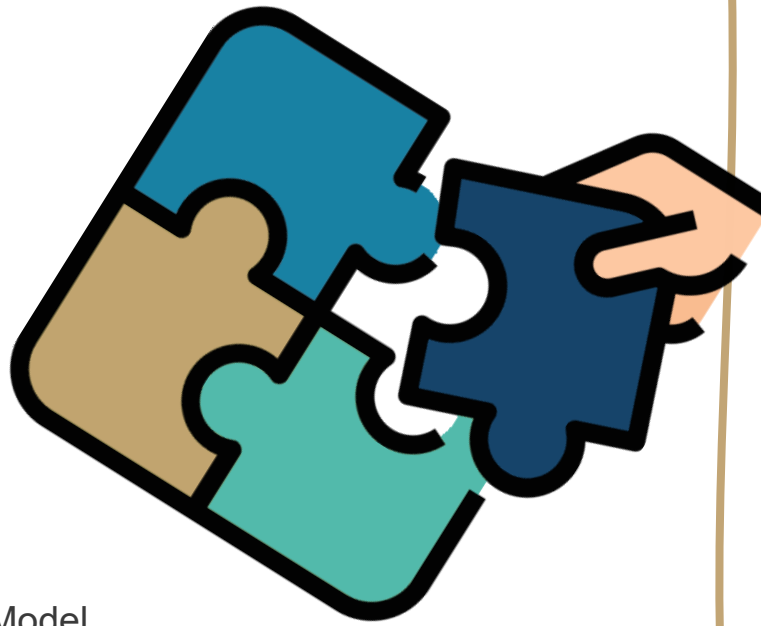
He holds a Bachelor's degree in Geomatics Engineering, a Master's degree in Urban Information Systems, and a PhD in Smart Cities. He has 24 years of experience, including 18 years in the public sector, specializing in GIS, Sustainable Transportation, Smart Transportation, and Smart Cities.

Mustafa Eruyar

He received his MSc and PhD in Transportation Systems. He has 15 years of experience and is currently working as a Senior Expert in Intelligent and Sustainable Transportation projects.

Solutions

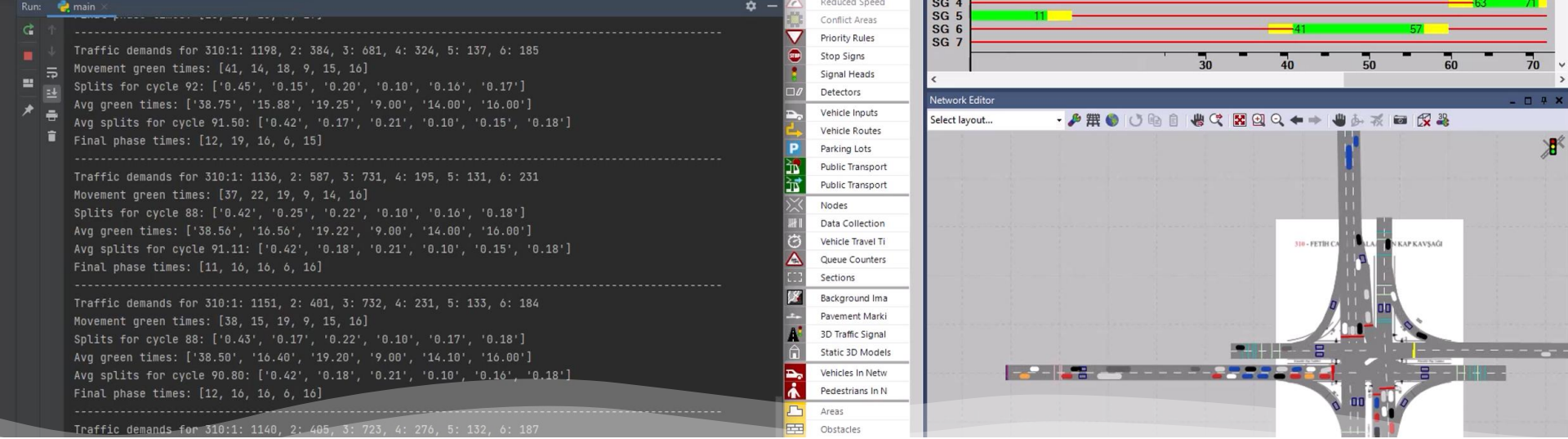
- ✓ SIGNOM (Signal Control by Autonomous Systems)
- ✓ Intersection and Traffic Counting System
- ✓ Public Transportation Information System
- ✓ Intersection Simulation Software
- ✓ GIS Software
- ✓ Open Data Platform
- ✓ Big Data Platform
- ✓ Smart City/Intelligent Transportation Index and Maturity Model



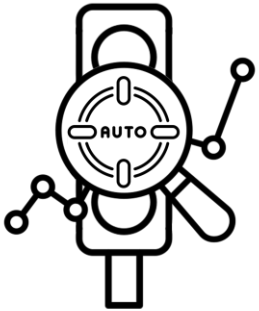
SIGNOM

- The operation of intersections in traffic with **fixed timings** leads to loss of efficiency, traffic congestion, air and noise pollution, environmental and safety problems such as accidents and pedestrian safety.

- The Autonomous Traffic Signal Control System (SIGNOM) aims to **optimally** manage intersections with **minimum human intervention.**



- SIGNOM offers **cost effectiveness**, **ease of use** and **high performance** compared to equivalent and similar products.
- It uses a camera and **artificial intelligence-based system** to generate solutions by **predicting changes** in traffic demand, and provides **analysis** and **reporting** to prevent negative situations that may occur in traffic.

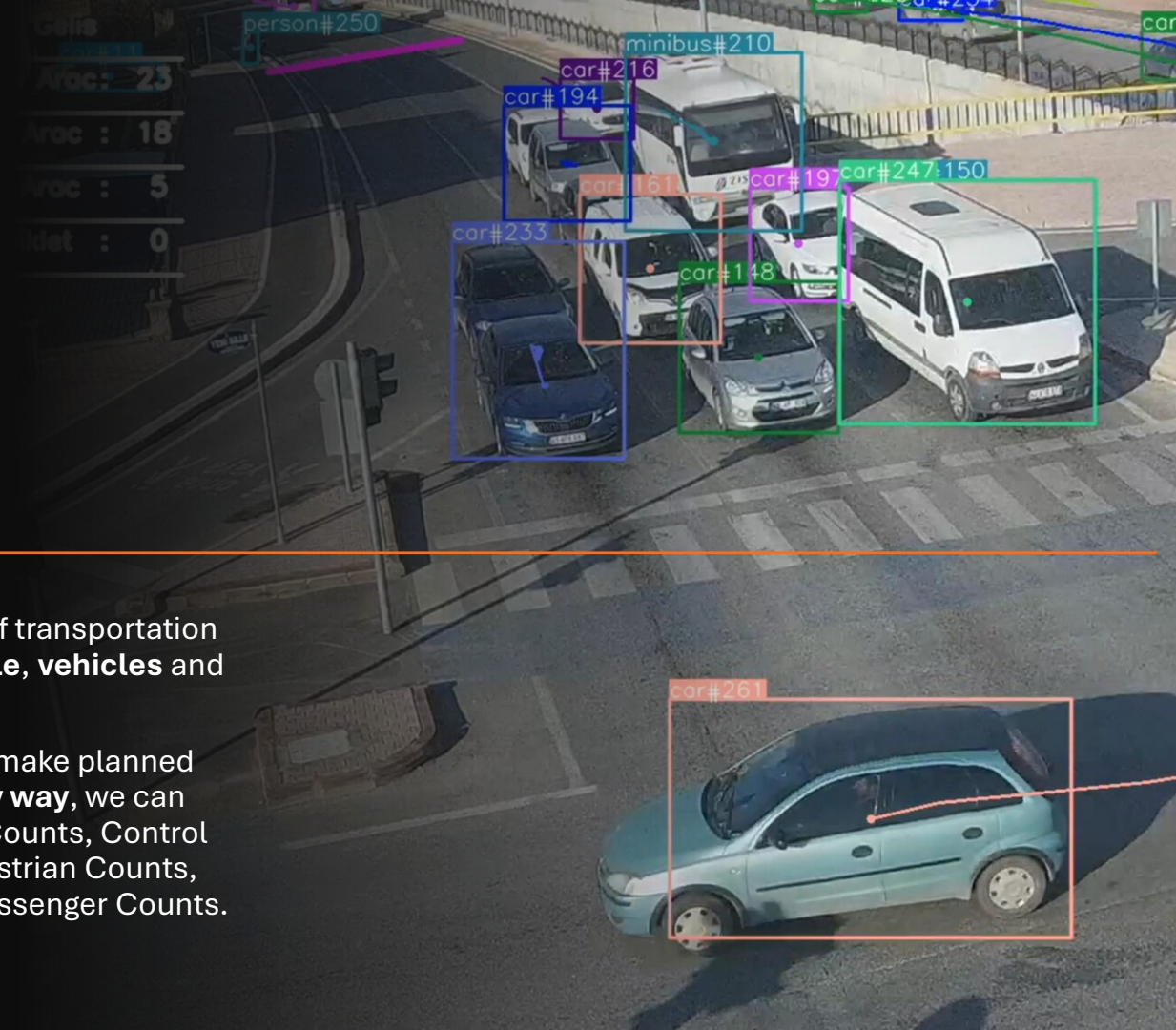


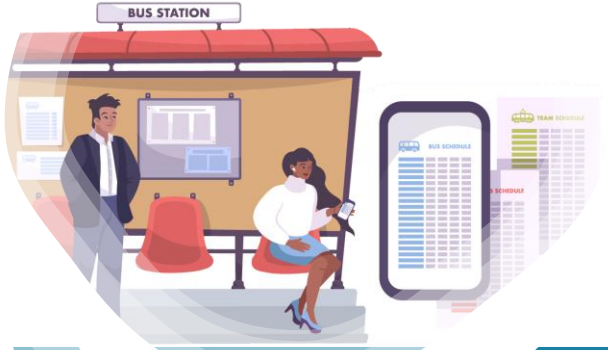
SIGNOM

Intersection and Traffic Counting System

Traffic data collection forms the basis of transportation planning studies in the triangle of **people**, **vehicles** and **roads**.

In order to solve existing problems and make planned transportation investments in **a healthy way**, we can conduct Intersection Counts, Section Counts, Control Counts, Cordon / Curtain Counts, Pedestrian Counts, Bicycle Counts, Scooter Counts and Passenger Counts.





Public Transportation Information System

Public Transport Information System; We are implementing an **integrated**, **sustainable** and **living system** for Public Transport Authorities, where the owner of the data is updated within **international standards**, more **comprehensive** and **accurate** analyzes are made based on up-to-date data, accurate and up-to-date data are transferred to citizens, decision support mechanisms are provided with the right data **quickly**, public transportation planning is made and optimization is provided in travel planning, and all public transportation institutions serving in the city are integrated.

Intersection Simulation Software

We model the current traffic flow at signalized and unsignalized intersections in a simulation environment and perform the necessary analysis **without going to the field**.

We model the current mode of operation of a signalized intersection (fixed time or with traffic warning) and **compare it** with SIGNOM. This comparison can be based on total delay time or total emission values.

We can also model the **requirements** to install a signalization system at an unsignalized intersection or the geometric adjustment requirements to **improve the flow** of an intersection.

GIS Software

We **collect**, **store**, **analyze** and **visualize** geographic data with Geographic Information Systems (GIS) Software. With these software, we make sense of spatial data with visual tools such as **maps** and **graphics** and help users **make decisions** based on geographic locations.

Using the databases and geographic analysis tools in this software, users can **examine** spatial relationships and **solve** problems.

Open Data Platform

With the Open Data for Cities Platform, we make **various** data sets from the public or private sector **accessible to everyone**.

With this platform, we support **data-driven decision-making** processes, increase **transparency** and provide social benefits by **encouraging innovation**.

At the same time, we offer developers, researchers and citizens in the city the opportunity to create **data-driven solutions** and access information.

Big Data Platform

With the Big Data Platform for cities and companies, we offer an infrastructure that **stores**, **processes** and **analyzes large** amounts of **structured** and **unstructured** data.

With this platform, we can process data **quickly** and transform data into **meaningful information** with various data analysis techniques.

With the Big Data Platform, we increase operational **efficiency** and support **strategic decision-making** processes for cities and companies.

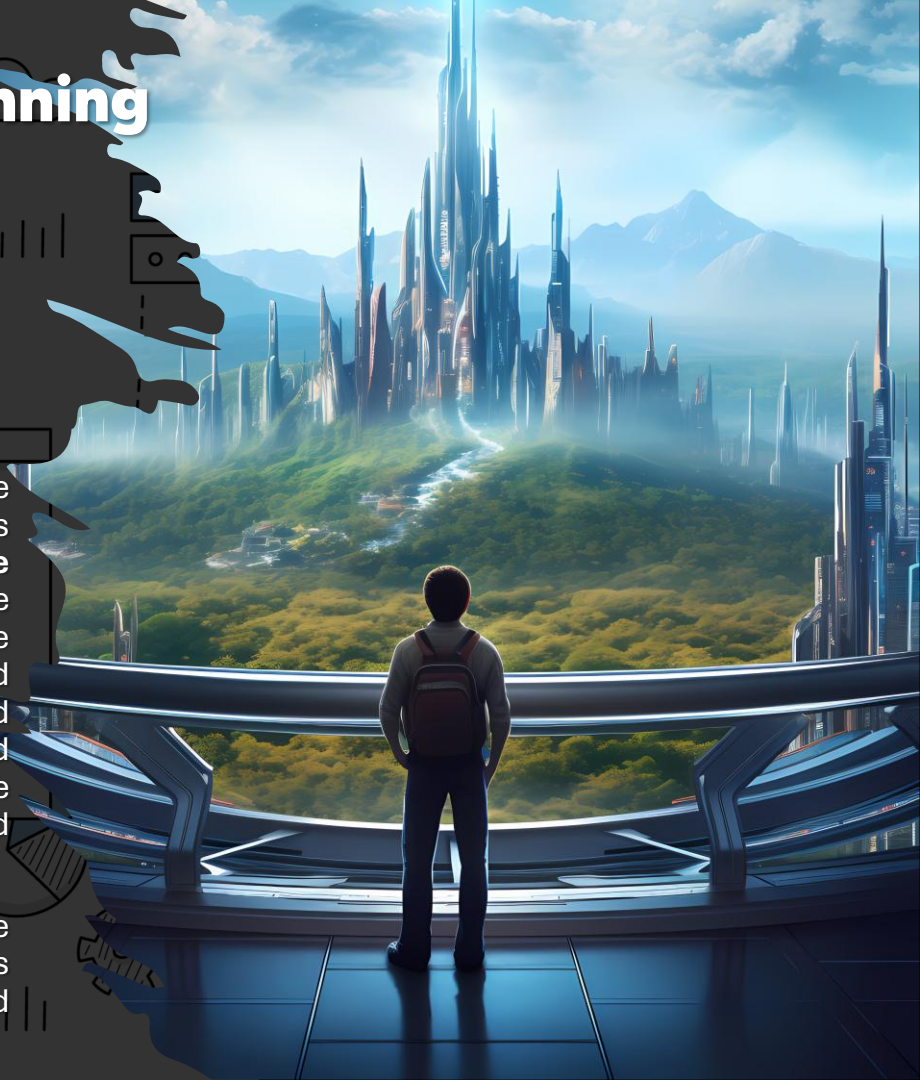
Smart City/Intelligent Transportation Index and Maturity Model

With the Smart City/Intelligent Transportation Index (quantitative assessment) and the Maturity Model (qualitative assessment), we **evaluate** how "smart" cities and transportation systems are, both by **comparing** them with other cities and with their **previous state**. With these models, we are able to determine the **level of development** of cities by analyzing criteria such as infrastructure, services, ICT, environment, economy, social, etc. With the results, we help cities **identify** their **weak points** and **optimize** their smart city/smart transportation projects.

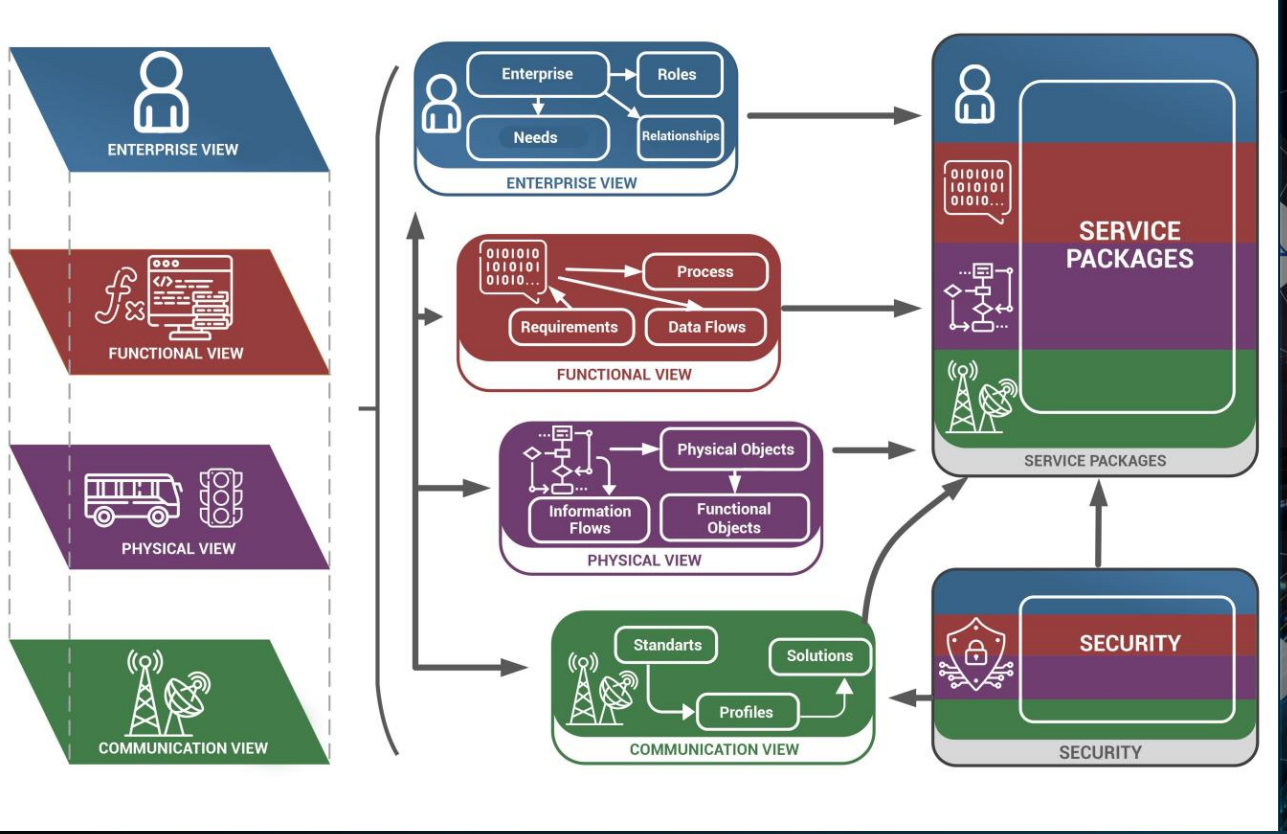
Services

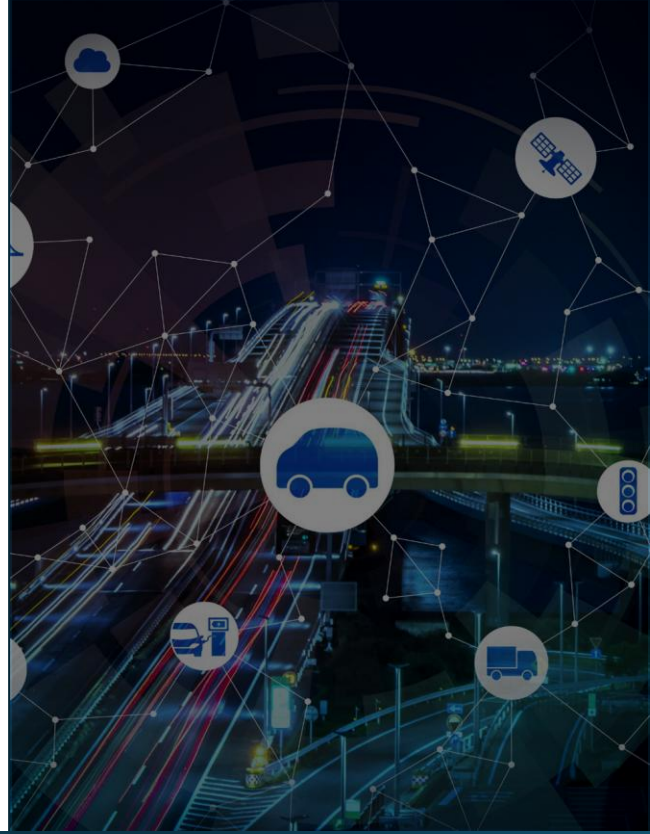
- ✓ Intelligent Transportation Systems Architecture
- ✓ Smart City Strategic Planning
- ✓ Intelligent Transportation Planning
- ✓ Sustainable Transportation Planning
- ✓ Traffic Survey Planning
- ✓ Traffic Data and Analysis
- ✓ Public Transportation Analysis
- ✓ Smart City Courses
- ✓ Traffic and Transportation Courses

Smart City Strategic Planning



- In order for Smart City investments to be made **effectively** and **efficiently**, it is necessary to research the **best practice examples** in the world, to analyze the **current situation** well and to determine the findings correctly, to identify applicable and high impact projects and to reveal the road map, and to design the information and communication technologies architecture for the interoperability of the determined projects.
- In order to carry out all these studies, we provide **tailor-made consultancy** services to each city with our large staff specialized in different fields.





Intelligent Transportation Systems Planning is a process that aims **to optimize transportation infrastructure** with technological solutions. By analyzing the **current state** of the city's transportation system, we determine the **ITS needs** and the infrastructure and services to be provided accordingly with a strategic planning approach. As a result, we propose solutions to the city's transportation problems with ITS by creating **more efficient**, **safer** and **environmentally friendly** transportation systems.

Intelligent Transportation Planning

- Sustainable Transport Planning is a process that aims to improve transportation systems from an **environmental**, **economic** and **social** perspective.
- Through Sustainable Urban Mobility Plans (SUMP/SKHP/SKUP), we develop strategies to promote the **use of public transport**, **walking** and **micromobility**; increase **energy efficiency** and reduce **carbon emissions**. We carry out our work in line with the SUMP preparation cycle applied in the EU.

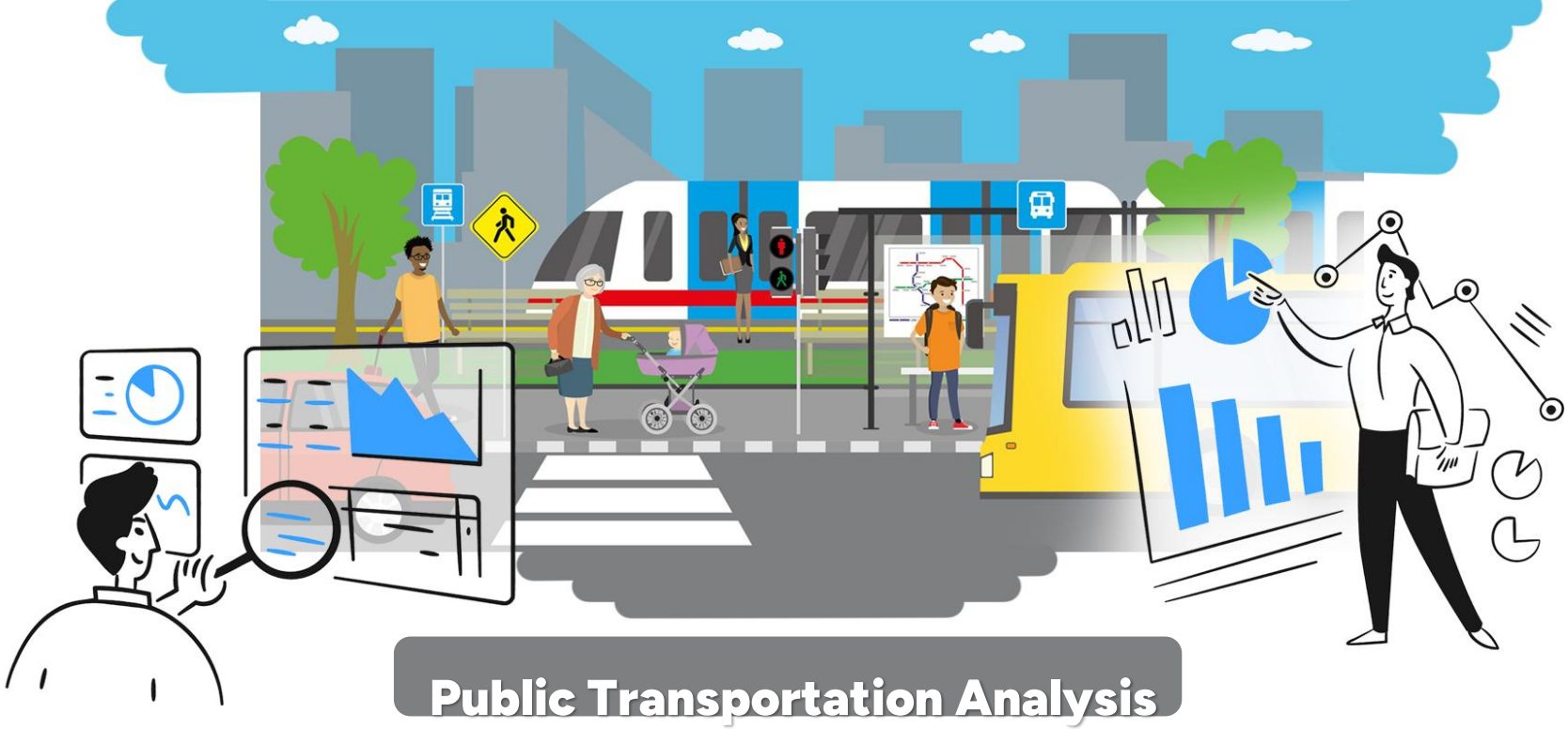
Sustainable Transportation Planning

Traffic Survey Planning

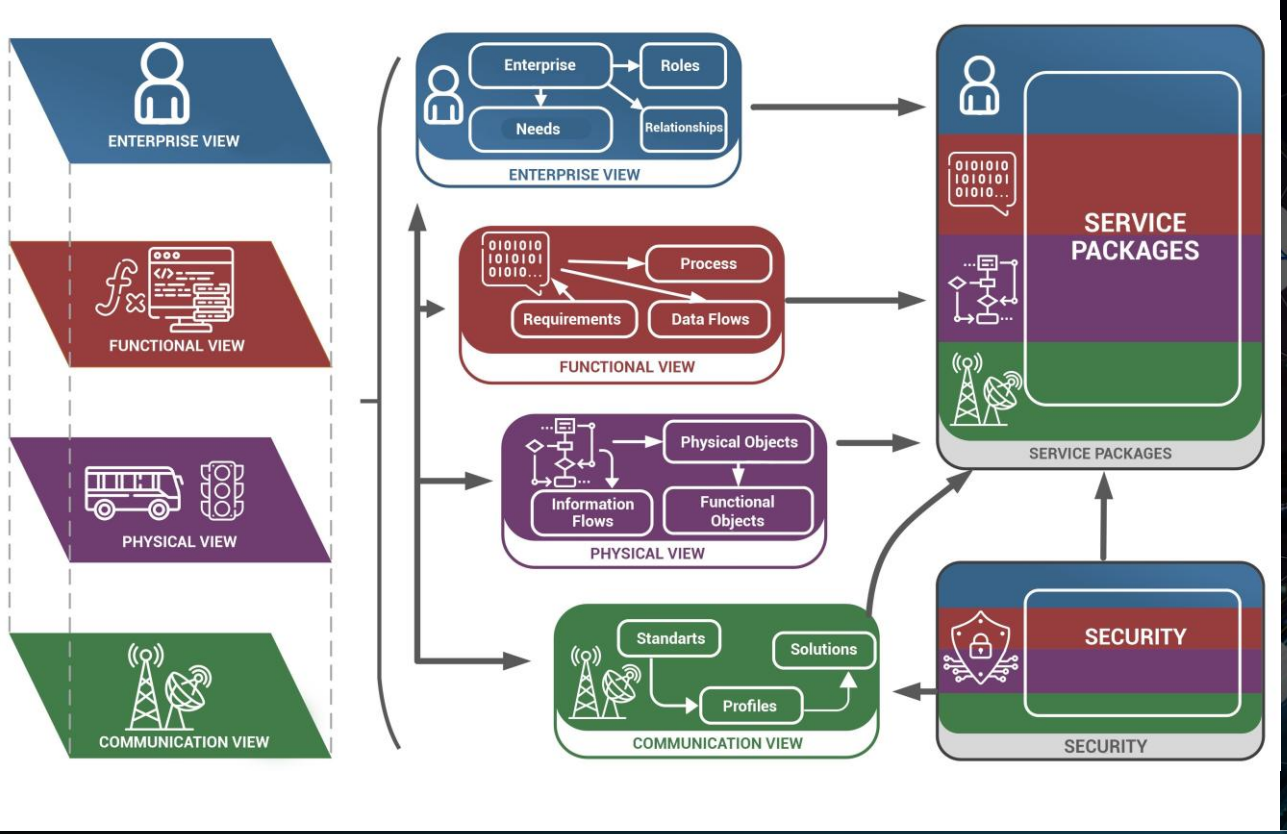
We perform traffic micro modeling studies that enable to see the benefit to be provided by comparing the current situation and **alternative solution** by applying traffic circulation or signaling studies in a simulation environment **before implementing** them in the field. In transportation planning, we provide **demand** and **supply** modeling and transportation macro modeling services that enable to see the benefit to be provided by comparing the current situation and alternative solution by applying new roads and/or public transportation lines in a simulation environment before they are implemented in the field.

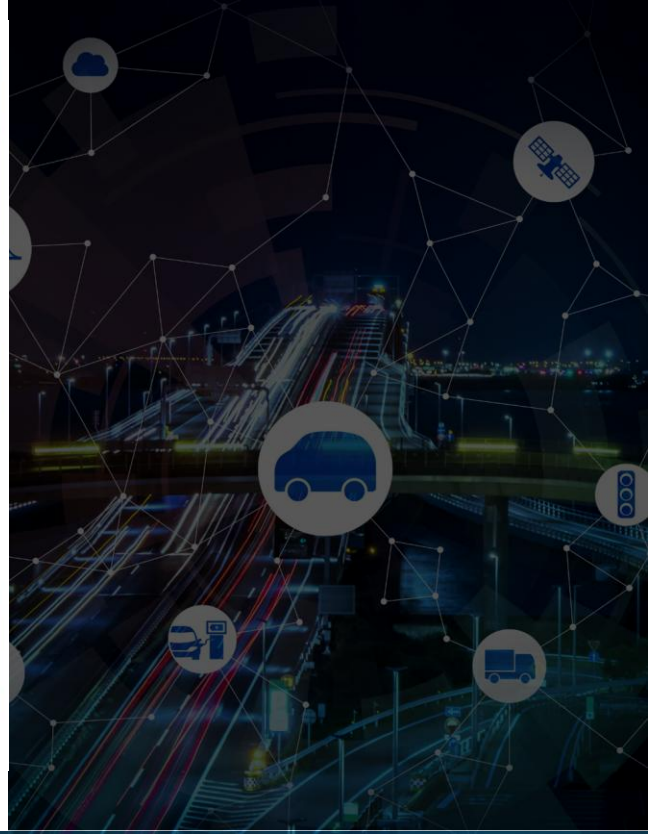
Traffic Data and Analytics

Traffic data and analysis studies contribute significantly to the **identification** of potential transportation problems **prior to** major transportation investment projects. We conduct these studies using **international traffic engineering methods** according to **the standards** stipulated by local governments or financing institutions. We conduct traffic data and analysis before investments such as highways and bicycle paths, pedestrianization areas, intersection projects, etc.



With Public Transportation Analytics, we evaluate the **performance**, **efficiency** and **user satisfaction** of public transportation lines and **offer necessary improvements**. With these analyses, we **examine** and **optimize data** such as passenger numbers, travel times, costs and service quality. As a result, we ensure that public transportation services are improved, planned and managed **more effectively.**





Türkiye National ITS Architecture, which **provides interoperability** in the field of ITS across the country and **covers all ITS needs** and **services**, has been developed by the Ministry of Transportation and Infrastructure. We can develop a Regional ITS Architecture of a city or a region in line with the National ITS Architecture of Turkey. ITS Architecture ensures that ITS planning can be realized **in coordination with all stakeholders.**

Intelligent Transportation Systems Architecture

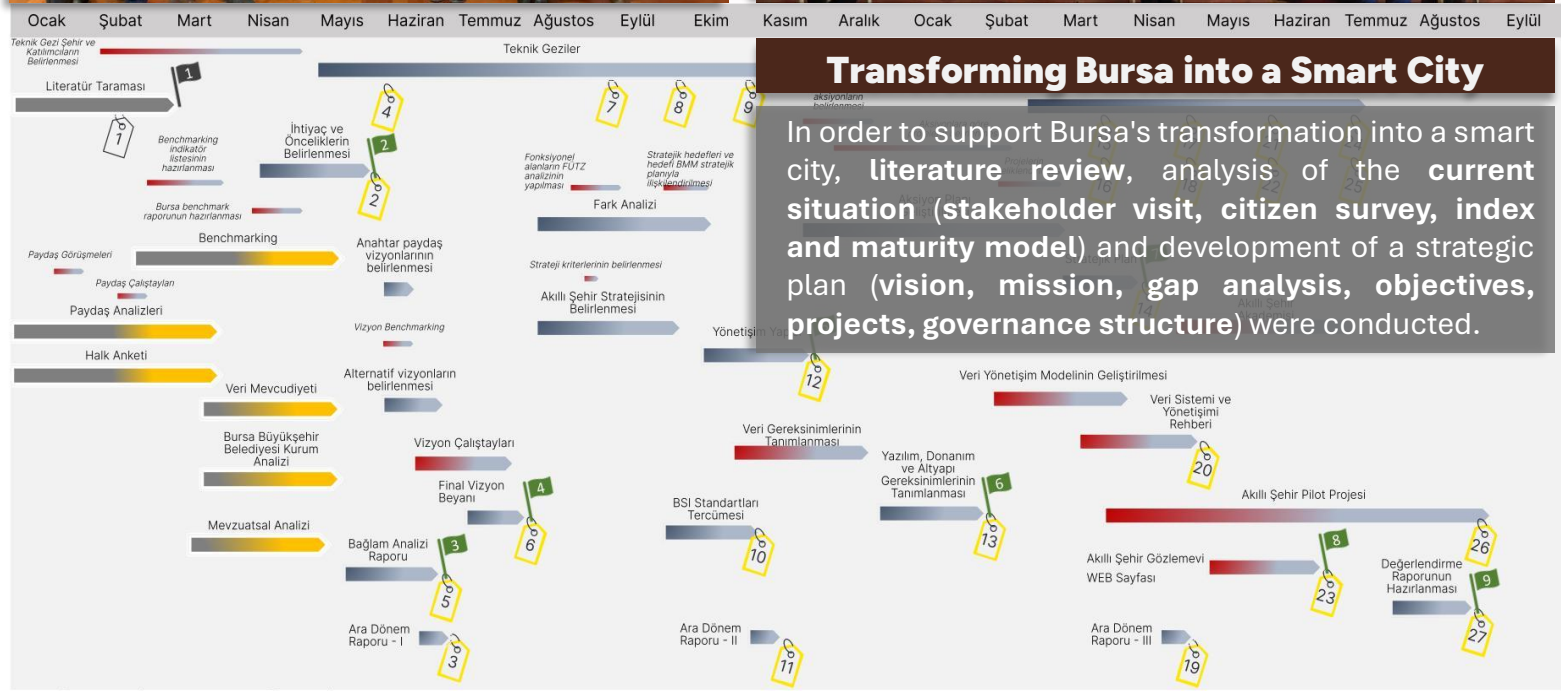
Training Courses

We have training programs in the fields of **Smart City**, **Intelligent Transportation**, **Sustainable Transportation**, **GIS**, **Traffic Engineering**, which will enable the development of different capabilities to increase the capacity of your **human resources**, our **most valuable** resource, in the field of smart and sustainable cities. With our on-site trainings that we will provide with our expert staff, you can establish an in-house team in the field of smart city, increase the capacity of the teams you have established, and carry out your own studies in the field of smart and sustainable cities.

Reference Projects

- ✓ Transforming Bursa into a Smart City
- ✓ Arnavutköy Smart City Strategy and Action Plan
- ✓ Kocaeli Smart Cities Project Design
- ✓ Türkiye National ITS Architecture
- ✓ Türkiye ITS Architecture Software
- ✓ Türkiye National ITS Platform
- ✓ Türkiye ITS Index
- ✓ Bursa Open Data Platform
- ✓ Konya Sustainable Urban Mobility Plan
- ✓ Eskişehir Sustainable Urban Mobility Plan
- ✓ ISBAK TSC Device Software Development and Update
- ✓ Union of Municipalities of Türkiye Smart City Courses

1 ~~Final Literatür Taraması Raporu~~
2 İhtiyaç ve Önceliklerin Tanımlanması Raporu
3 Bağlam Analizi Raporu
4 Final Vizyon Beyanının Oluşturulması ve Raporlanması
5 Yönetişim Yapısı
6 Yazılım, Donanım ve Altyapı İhtiyaçlarının Tanımlanması
7 Stratejik Plan
8 Akıllı Şehir Gözlemevi - WEB Sayfası
9 Değerlendirme Raporunun Hazırlanması



Transforming Bursa into a Smart City

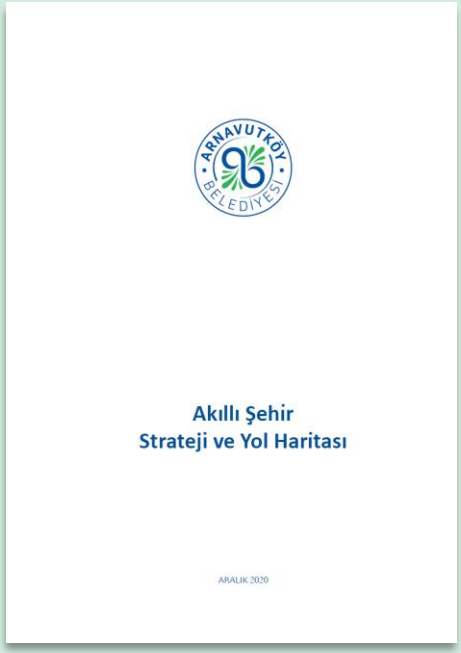
In order to support Bursa's transformation into a smart city, **literature review**, analysis of the **current situation** (**stakeholder visit, citizen survey, index and maturity model**) and development of a strategic plan (**vision, mission, gap analysis, objectives, projects, governance structure**) were conducted.

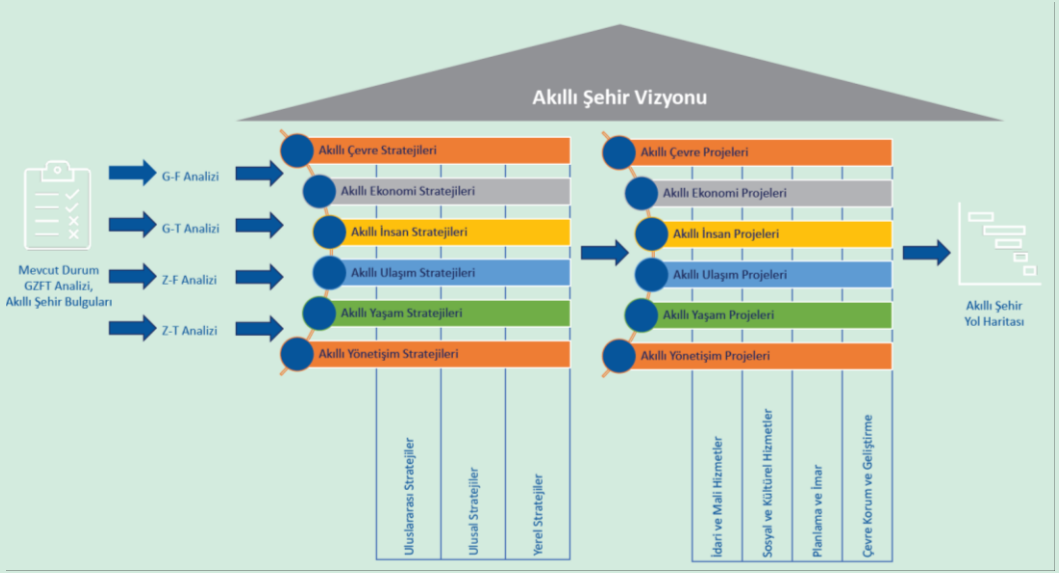
Çıktılar & Teslimler

1	Taslak Literatür Taraması Raporu
2	İhtiyaç ve Önceliklerin Tanımlanması Raporu
3	Ara Dönem Raporu - I
4	Teknik Gezi Raporu - I
5	Bağlam Analizi Raporu
6	Final Vizyon Beyanının Oluşturulması ve Raporlanması
7	Teknik Gezi Raporu - II
8	Teknik Gezi Raporu - III
9	Teknik Gezi Raporu - IV
10	BSI Standartları Tercümesi
11	Ara Dönem Raporu - II
12	Yönetişim Yapısı
13	Yazılım, Donanım ve Altyapı İhtiyaçlarının Tanımlanması
14	Stratejik Plan Raporu
15	Kapasite Geliştirme Eğitimleri - I
16	Kapasite Geliştirme Eğitimleri Raporu - I
17	Kapasite Geliştirme Eğitimleri - II
18	Kapasite Geliştirme Eğitimleri Raporu - II
19	Ara Dönem Raporu - III
20	Veri Sistemi ve Yönetişimi Rehber
21	Kapasite Geliştirme Eğitimleri - III
22	Kapasite Geliştirme Eğitimleri Raporu - III
23	Akıllı Şehir Gözlem Evi - WEB Sayfası
24	Kapasite Geliştirme Eğitimleri - IV
25	Kapasite Geliştirme Eğitimleri Raporu - IV
26	Pilot Proje Gereksinimleri
27	Değerlendirme Raporu

Arnavutköy Smart City Strategy and Action Plan

Within the scope of the project, stakeholder management plan preparation, current situation analysis (**stakeholder interviews, stakeholder data analysis, SWOT analysis**, etc.), smart city strategy and roadmap development (**vision, strategic goals and project identification, action plan design, preparation of technical specifications**), smart city architecture (existing architecture analysis and proposed architectural design) studies were carried out.

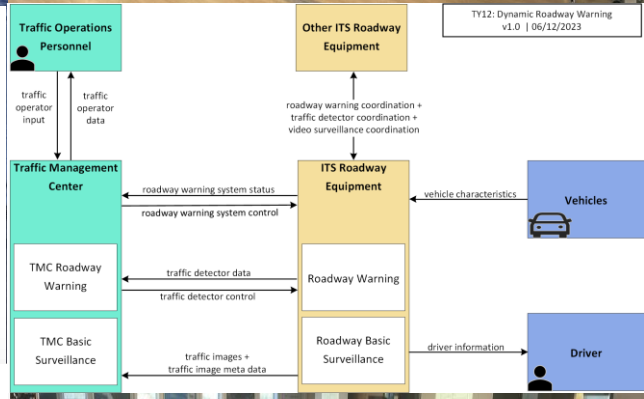




Kocaeli Smart Cities Project Design

In order to facilitate urban life, project design services were provided on "Smart Cities" based on the use of technology in urban life in accordance with the vision of Kocaeli Metropolitan Municipality. Preparation of specifications showing the technical specifications of the projects and preparation of project plans were carried out.

Türkiye National ITS Architecture



- Within the scope of the project, reference national ITS architectures were analyzed. The **needs of ITS users** in Türkiye were identified through **stakeholder interviews** and **citizen surveys**.
- The **selected reference ITS architecture** was adapted to Türkiye according to the needs of users in Türkiye.
- Türkiye's National ITS Architecture was prepared to include **50 different service packages** including **enterprise**, **functional, physical** and **communication views** in **12 different service areas**.

Türkiye ITS Architecture Software

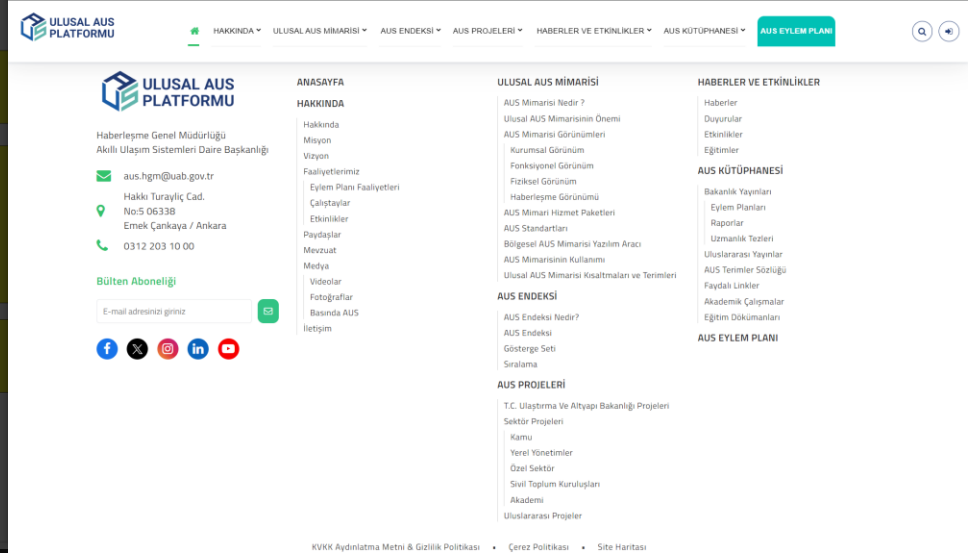
Türkiye National ITS Architecture Software has been prepared by adapting the software of the reference ITS architecture to Türkiye.

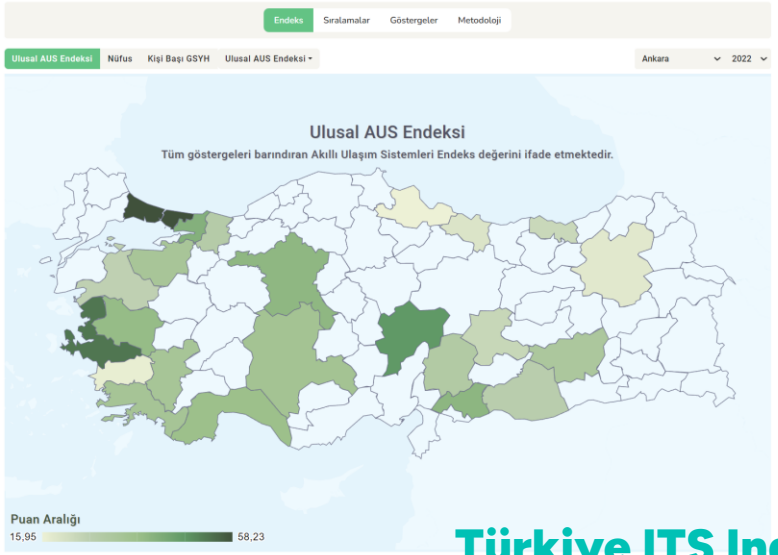
With this software, it is possible to develop a **Regional ITS Architecture** that responds to the ITS user needs of a **specific city/region** and consists of ITS projects **compatible with the National ITS Architecture** of Türkiye.

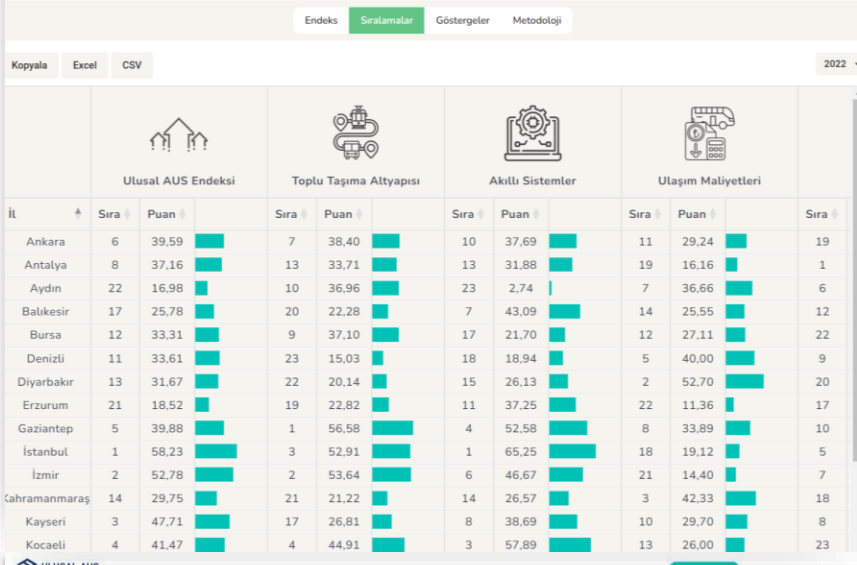
Within the scope of the project, the Regional ITS Architecture of a metropolitan city in Türkiye was prepared.

Türkiye National ITS Platform

- National ITS Platform (**www.aus.gov.tr**) prepared within the scope of the project includes **national ITS architecture, ITS index, ITS projects, news** and **events, ITS library, ITS Action Plan**.
- National ITS architecture is the menu where information about the architectural structure, **introduction of the architectural structure and its use** is available.
- ITS index is the menu with **city score, rankings, indicators** and **methodology.**
- ITS projects, menu with national and international projects. News and events is the menu with all news, **announcements** and **events** from the field of ITS.
- ITS library is the menu containing the **documents** prepared **within the scope of ITS.**



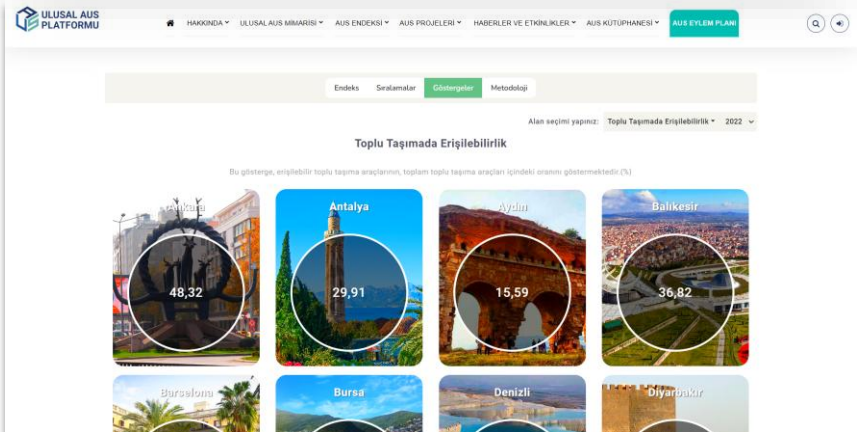




Türkiye ITS Index

- The ITS Index comparatively evaluates **23 metropolitan cities** in Türkiye with **30 indicators** on **9 different axes**.
- The most up-to-date **quantitative data and objective methods** were used in all steps of the index construction process (indicator construction, data processing, weighting and aggregation).
- The ITS Index is constructed as a data-driven, unbiased, holistic and reliable index that aims to test the extent to which ITS **affect and improve individual quality of life**.

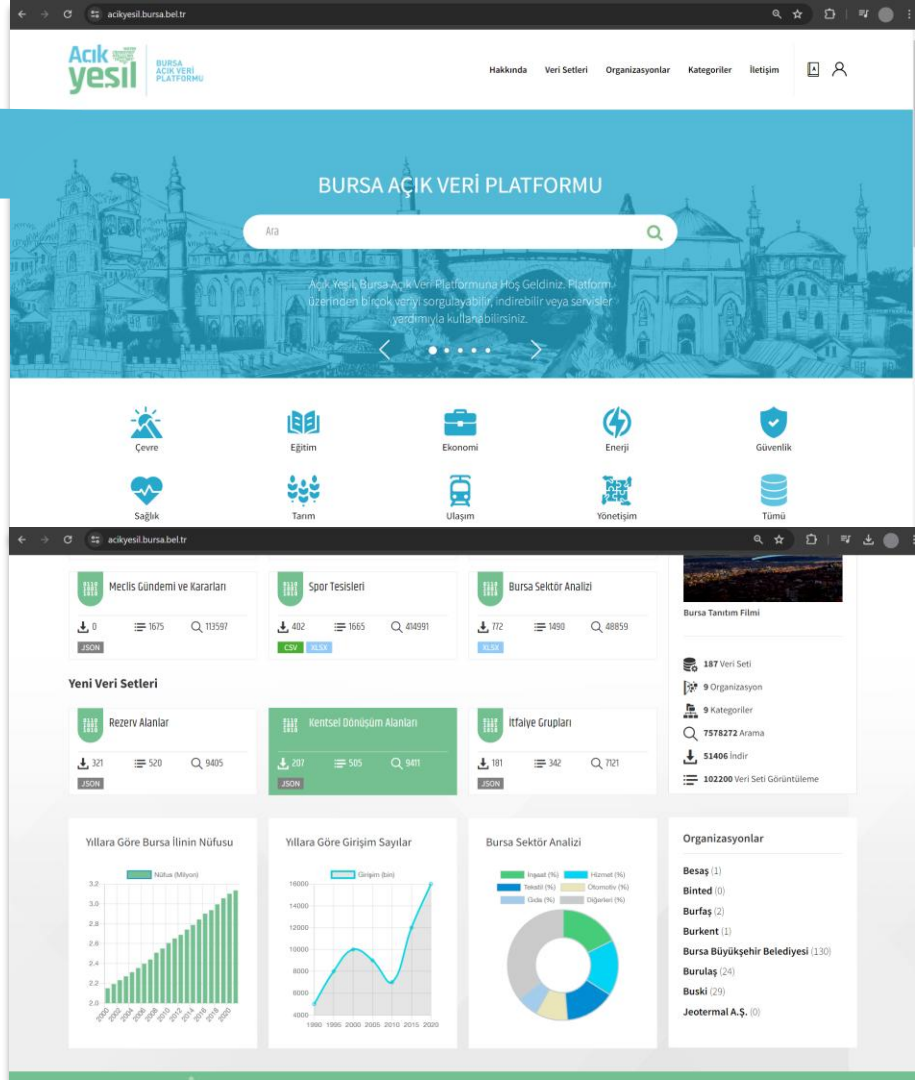
aus.gov.tr/aus-endeksi



Bursa Open Data Platform

Bursa Open Data Platform, **Açık Yeşil** (https://acikyesil.bursa.bel.tr/) is a free data platform where **data produced** by Bursa Metropolitan Municipality and its subsidiaries and other stakeholders are published.

Within the **scope of the project**, preparation of the server, installation of the CKAN program, installation of the ATLAS program, web page design, uploading the data sets to the platform, adapting the web page to the CKAN program, performing penetration testing, installing the platform on local servers, and providing training on open data platform and management.



Konya Sustainable Urban Mobility Plan

In line with the Sustainable Urban Mobility Plan (SUMP) preparation cycle applied in the EU, work was carried out in four stages:

- **Preparation and Analysis**
- **Measure Planning**
- **Strategy Development**
- **Implementation and Monitoring**

A citizen needs analysis survey and stakeholder interviews were conducted. **Quantitative data** on urban mobility status was collected from **stakeholders** and the field and Konya Transportation model was updated. The Project was completed with the **SUMP scenario** and the Measure Plan showing the **implementation plan of the measures** (projects) grouped under different themes in this scenario until 2030.

Eskişehir Sustainable Urban Mobility Plan

In line with the Sustainable Urban Mobility Plan (SUMP) preparation cycle applied in the EU, work was carried out in four stages:

- ► **Preparation and Analysis**
- ► **Strategy Development**
- ► **Measure Planning**
- ► **Implementation and Monitoring**

A citizen needs analysis survey and **stakeholder** interviews were conducted. **Quantitative data** on urban mobility status was collected from stakeholders and the field and the Eskişehir transportation model was updated. The Project was completed with the **SUMP scenario** and the Measure Plan showing the **implementation plan of the measures** (projects) grouped under different themes in this scenario until 2030.

Development of the NTCIP communication module in the **Traffic Signal Controller (TSC) device** of IBB İSBAK AS,

CPU core implementation in accordance with NTCIP standards and other **TSC software development and update works** required by İSBAK were carried out.

ISBAK TSC Device Software Development and Update

Union of Municipalities of Türkiye Smart City Courses

Trainings on Smart City and Awareness, Smart City Reference Architecture and Platform, Smart City Financing Models, Project Management in Smart Cities, Smart City Best Practices, Governance in Smart Cities, Smart City Planning, Sustainability in Smart Cities were delivered online to the members of Union of Municipalities of Türkiye (UMT). In addition, National ITS Architecture and Sustainable Urban Mobility Plans trainings were provided online to UMT members under the coordination of ITS Türkiye.

Intelligent Transportation Systems

Thank You!

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SMART CITY TECHNOLOGIES

Communication

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