

Intelligent Transportation Systems: A Global Perspective

Zeina Nazer MSc PE MBA

*External Expert for UK Department for Transport
Chair ITS UK (RUC Forum)
Co-Founder Cities Forum*

*02 May, 2024
Ankara, Turkey*





Who We Are?



- CITIES FORUM is a multidisciplinary, international group of experts with a wealth of experience in the sustainable urban development.
- Co-founded at the University of Oxford, with a vision to build more efficient, resilient and sustainable communities;
- Strong capabilities in research and technology application in delivering sustainable development projects.
- CITIES FORUM aims at being catalyst, working with cities, companies and organisations to address and solve their urban and sustainable development challenges more efficiently.

Winner



Consulting
CITIES FORUM



Cities Forum Initiatives



MEET THE CITY CHANGERS

Interview with key experts and change makers in urban development and mobility sector

REIMAGINING WORLD CITIES

Sharing Best Practices within Cities and promote cross learnings in achieving sustainable development



KNOWLEDGE SHARING

We disseminate the knowledge around smart cities areas and work as knowledge partner with various events and workshops.

TRAINING & CAPACITY BUILDING

Under **Cities Forum Academy**, we develop Professionals Capacity Building Programs using virtual learning platform bringing together global experts and academicians



Work Programs



DIGITAL TRANSFORMATION

- IOT (Internet of Things)
- 5G Technology
- Data-Driven Cities & Cloud
- Blockchain applications
- AI (artificial Intelligence)
- Safe Cities

URBAN MOBILITY & TRANSPORT

- E Mobility
- Public Transport
- Connected Vehicles
- Transport infrastructure

GOVERNANCE & FINANCE

- Funding
- Multilevel Governance
- Multi-Stakeholder
- E-Gov & Open-Gov
- Data Governance
- Standards & Indicators

ENVIRONMENT

- Energy efficiency
- Resilient Cities
- Climate Change
- Public Space & Green Districts
- Urban Planning Cleantech

SOCIAL INCLUSION & SHARING CITIES

- Sharing Cities
- Social Inclusion
- Collaborative Policy
- Gentrification & Housing
- Circular Economy
- Innovation Ecosystems

KNOWLEDGE SOCIETY

- Standards & Interoperability
- Improvement of processes
- Universal access to information
- Shared data enhancement
- Matchmaking of cities & companies

Clients and Collaborators



The Team

Zeina Nazer
Cofounder



Jaime Ruiz Huéscar
Cofounder



Shailendra Kaushik
Cofounder



Mona Bhardwaj
Lead thematic expert



Richard Lambert
Lead thematic expert



Carlos Bueno-Cadena
Lead thematic expert



Antonio García
Lead thematic expert



Meshack Ochieng
Lead thematic expert



Patricia Giménez
Lead thematic expert



Cities Forum, specialising in Research, Advisory and Project Development, was born in 2018 by a group of multidisciplinary experts who met at Oxford University and joined forces by complementing their skills, experience and common background to help cities become more resilient and sustainable.

Through our Global team of experts, we have skills to review, analyse and prioritise city development projects that can create a catalytic economic impact for cities and Regions.

Our team brings international best practices and experience, combined with local resources and knowledge. We combine in-depth technical excellence and strong capabilities in research and technology implementation in managing cities.



Headquarter



LONDON
HEADQUARTER

Delegations



MADRID
OFFICE



DUBAI
OFFICE



BOGOTÁ
OFFICE



DELHI
OFFICE



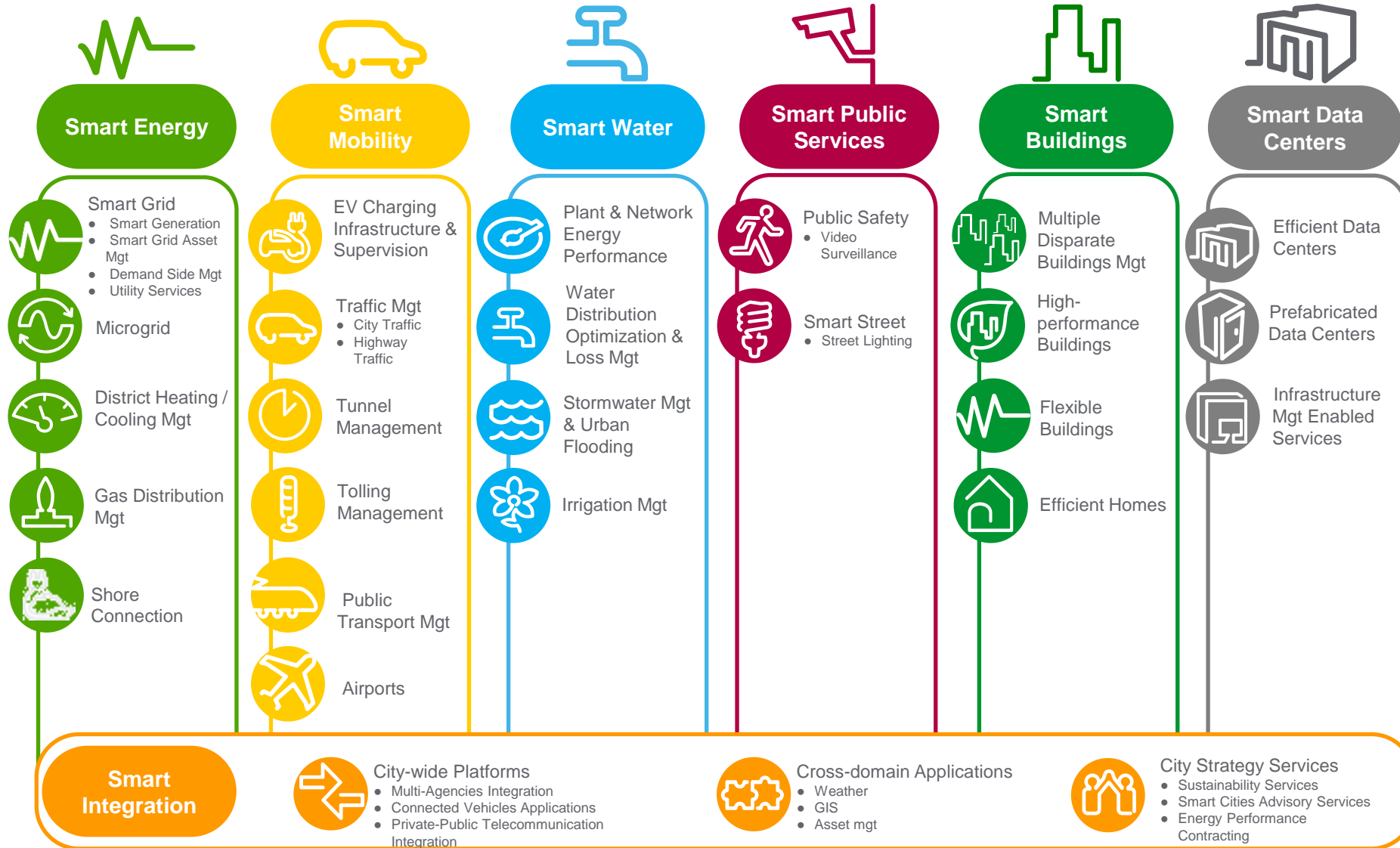
NAIROBI
OFFICE

Research | Advisory | Project Development

Executive Summary

- ❖ Intelligent Transport Systems (ITS) is the foundation of the Smart Cities Concept
- ❖ Smart infrastructure Management heading towards Smart Operations.
- ❖ Smart Vehicles heading towards Fully Autonomous and Connected
- ❖ Smart Vehicles heading towards Electrical
- ❖ Government Authorities are the only **DECISION MAKERS** in determining the speed of ITS deployments.
- ❖ The Middle East Region in general, and GCC in particular is destined to lead the world in ITS deployments, driven by:
 - Greenfield advantage
 - Growing e-Government Services and the direction towards the Vision
 - Transport infrastructure rapid growth (Roads and Public Transport)

Smart Cities Concept Introduction



Source: Schneider Electric

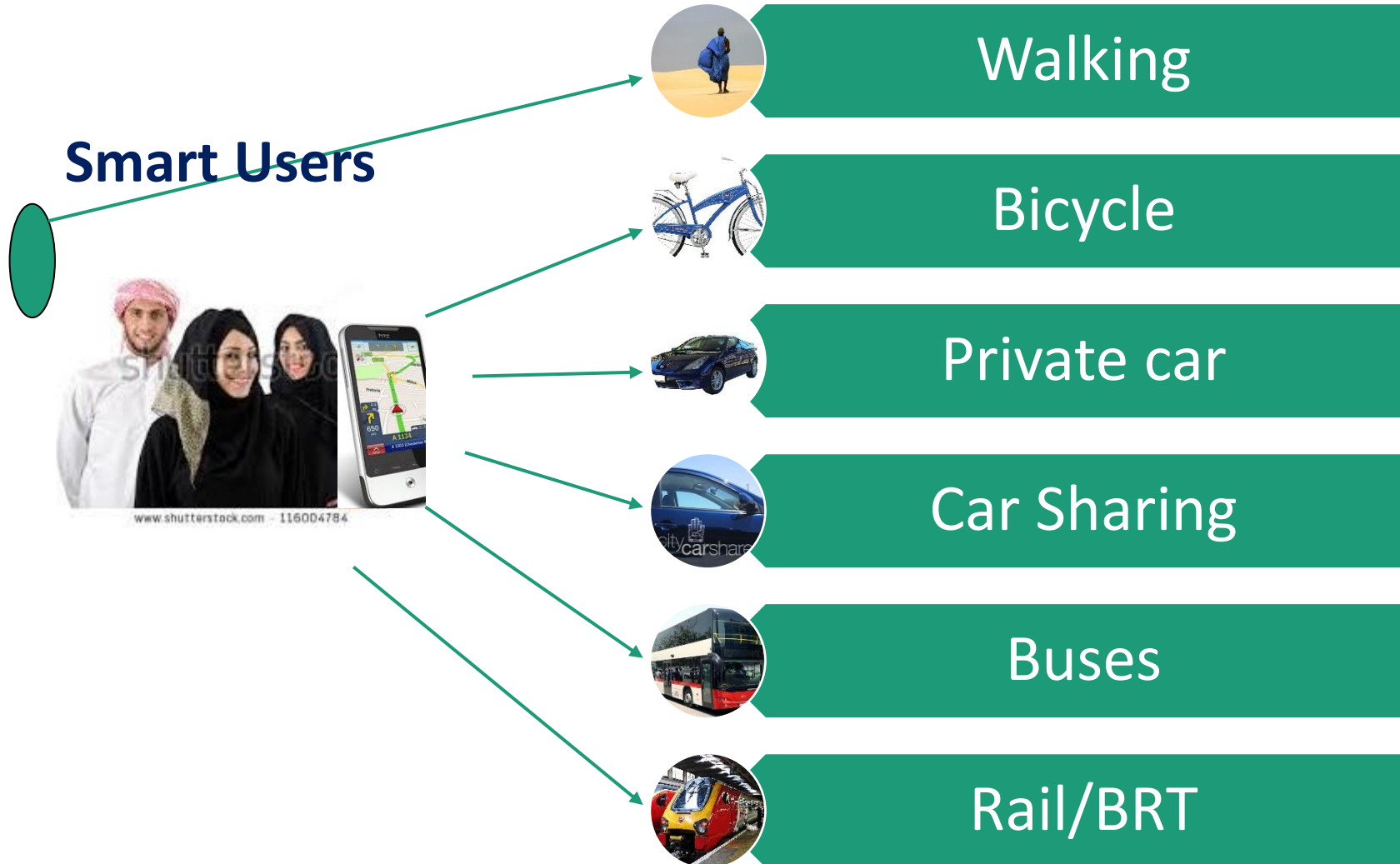
Research | Advisory | Project Development

Smart Mobility Motivation

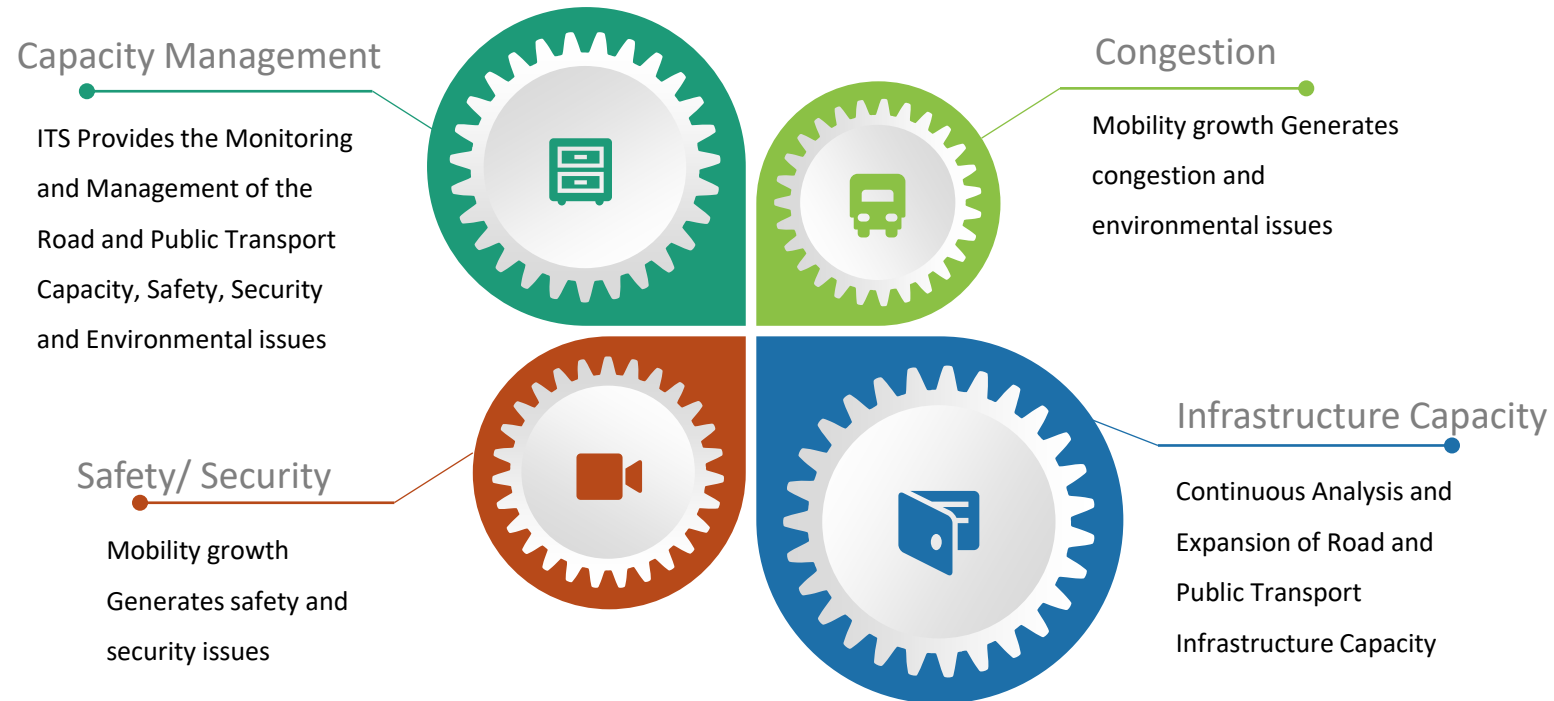
(Safety, Security, Efficiency & Environment)

- ❖ Major reduction in road collisions
- ❖ Increase effective road capacity (up to 20%)
- ❖ Improve travel time (empowering the public)
- ❖ Improve public transport safety and efficiency
- ❖ Help achieve reduction of vehicle emissions

Smart Users – Demand Smart Mobility

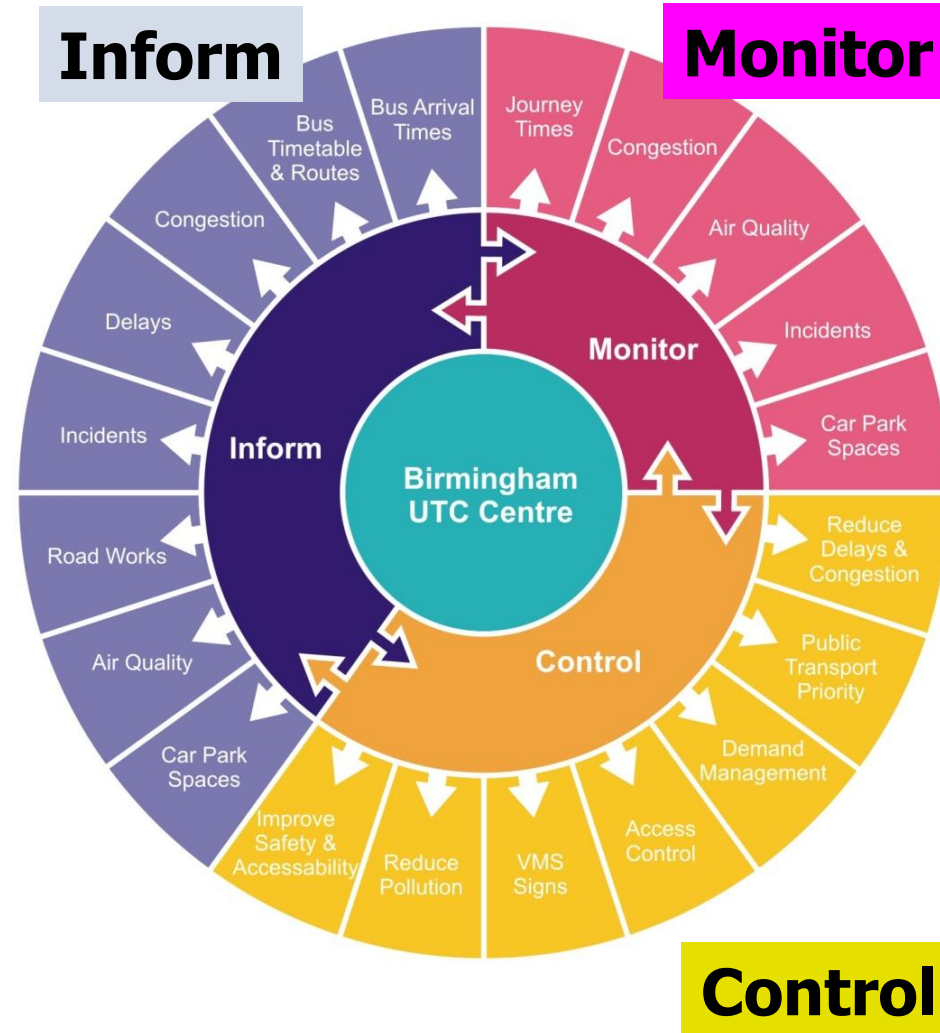


Mobility Growth – Powerful driver for the Economy

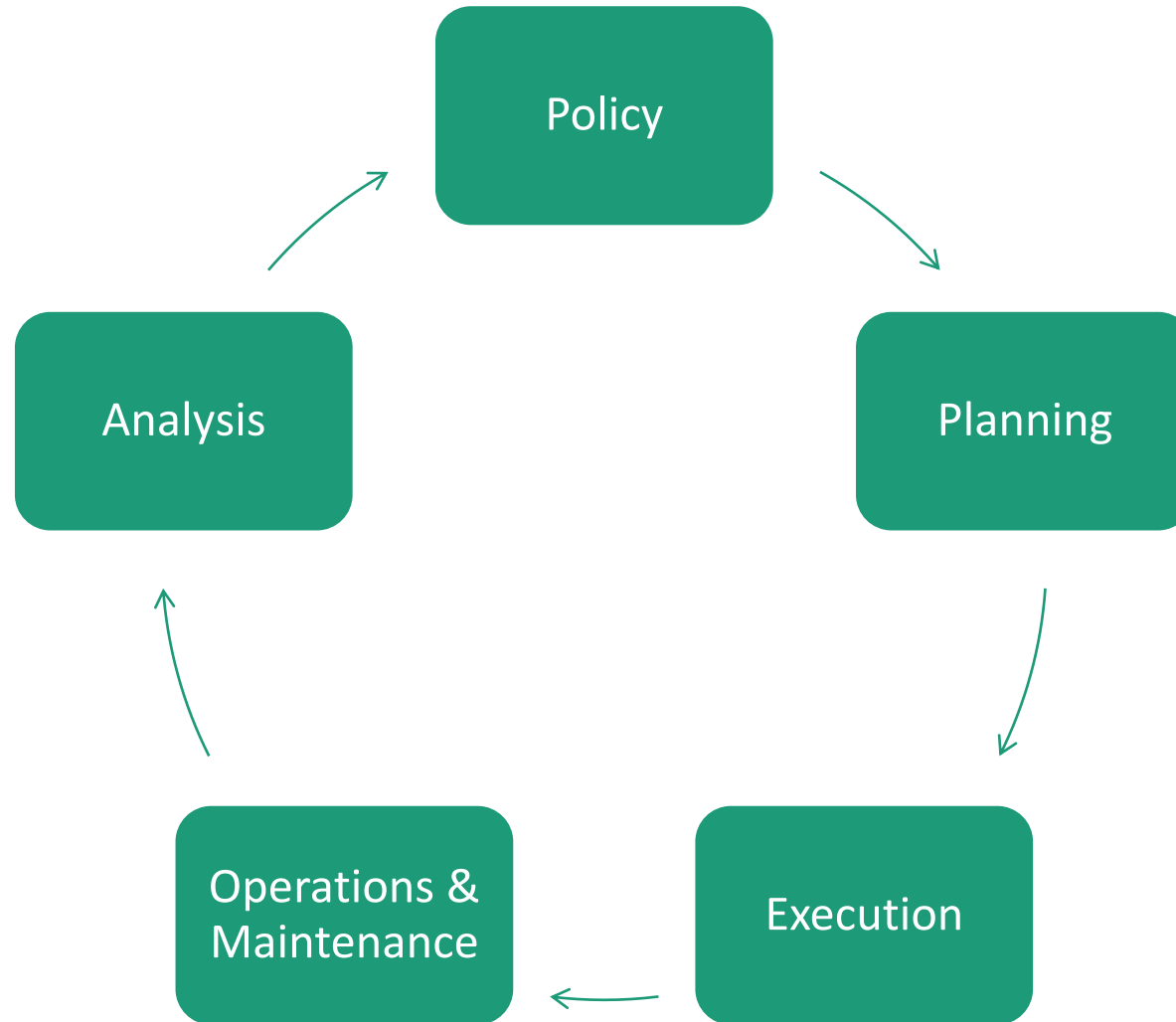


ITS Definition – Example

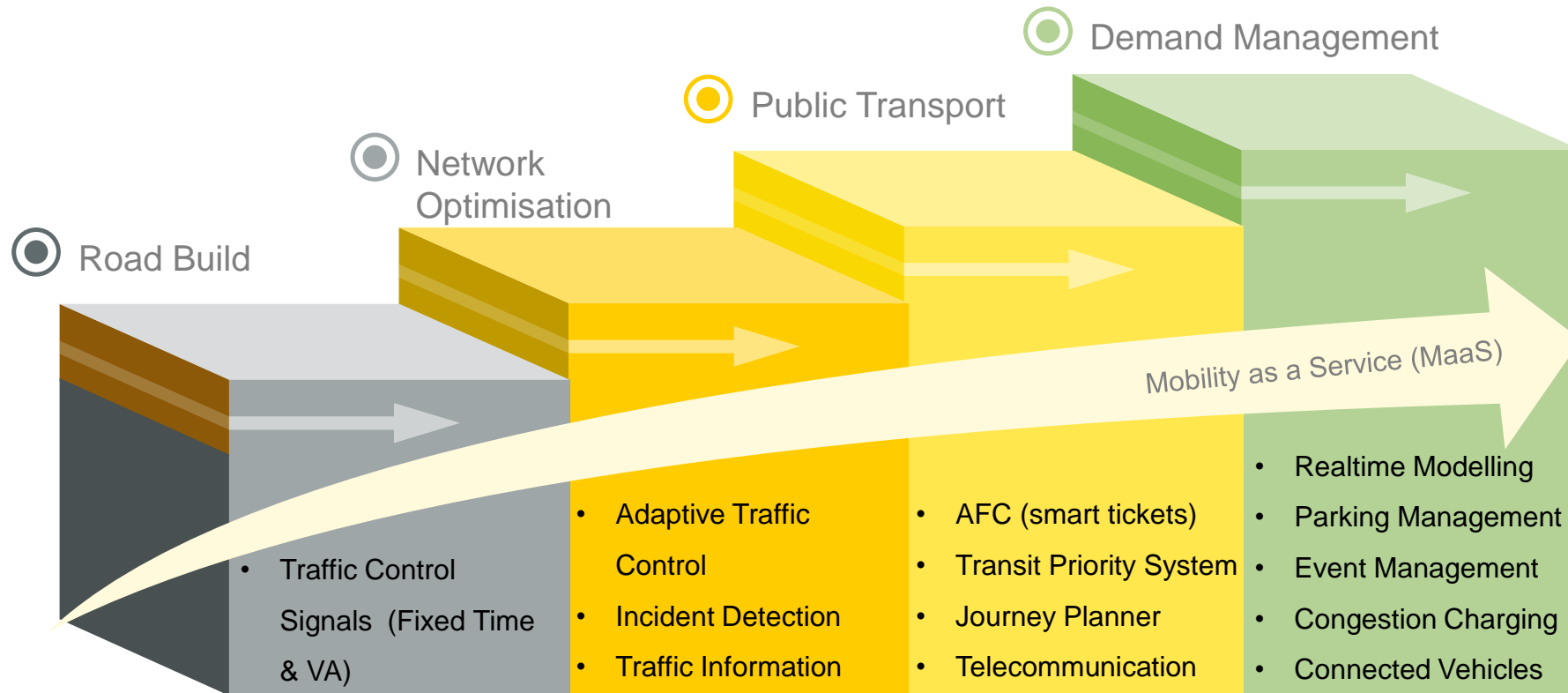
- ▶ Many definitions but mainly comes down to Monitor, Control, and Inform on all aspects of the transport network



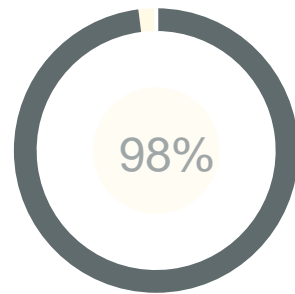
ITS - Facilitates Efficient Traffic Engineering Cycles



ITS Deployment Steps towards Mobility as a Service (MaaS)

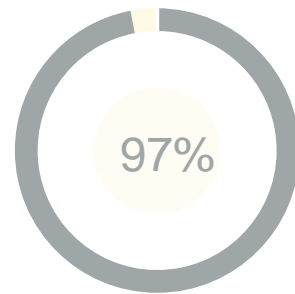


ITS Market Trend Overview



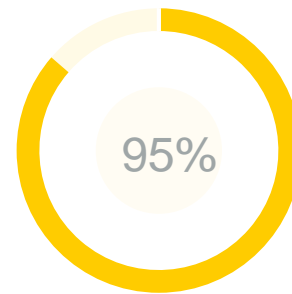
Predictive

Realtime
Modelling-based systems
(Traffic congestion,
Floods, Events, etc)



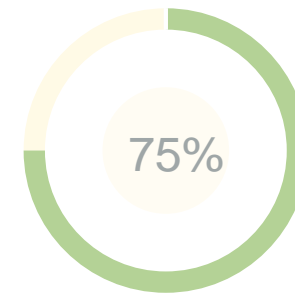
Sharing

Real-time
data sharing and
data mining
specialised applications



Cloud

Cloud-based/hosted
ITS solutions for rapid
and flexible deployments



Driverless

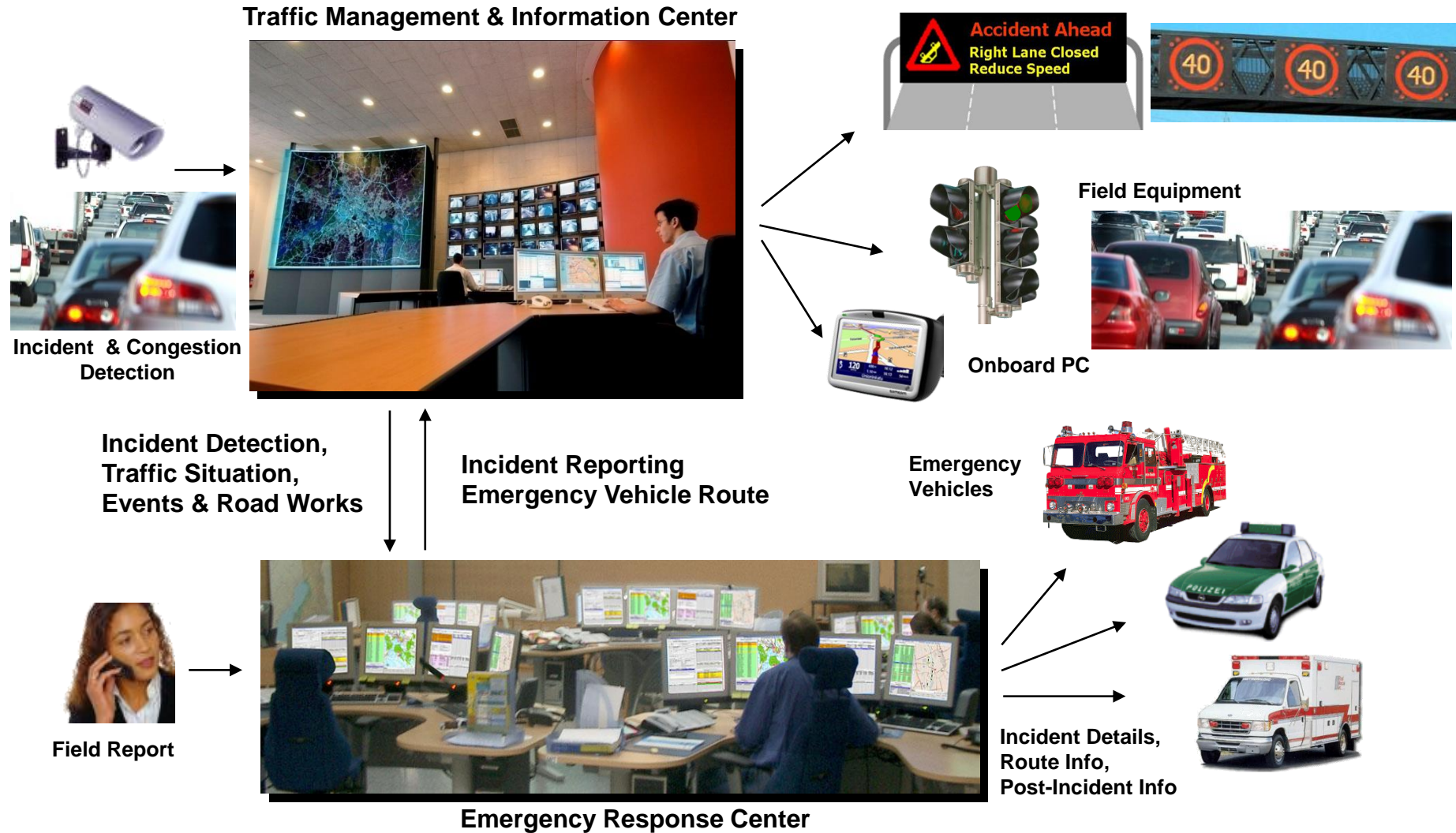
Autonomous Vehicles
with new business models

Autonomous Vehicle Development Trend

- from Autonomous Preventative Safety systems (Anti collision) to Cooperative Preventative safety systems (V2V & V2I)
- from Cooperative Preventative Safety to Autonomous Vehicles
- from Autonomous Vehicles to Autonomous Mobility Management and Mobility as a Service (MaaS)



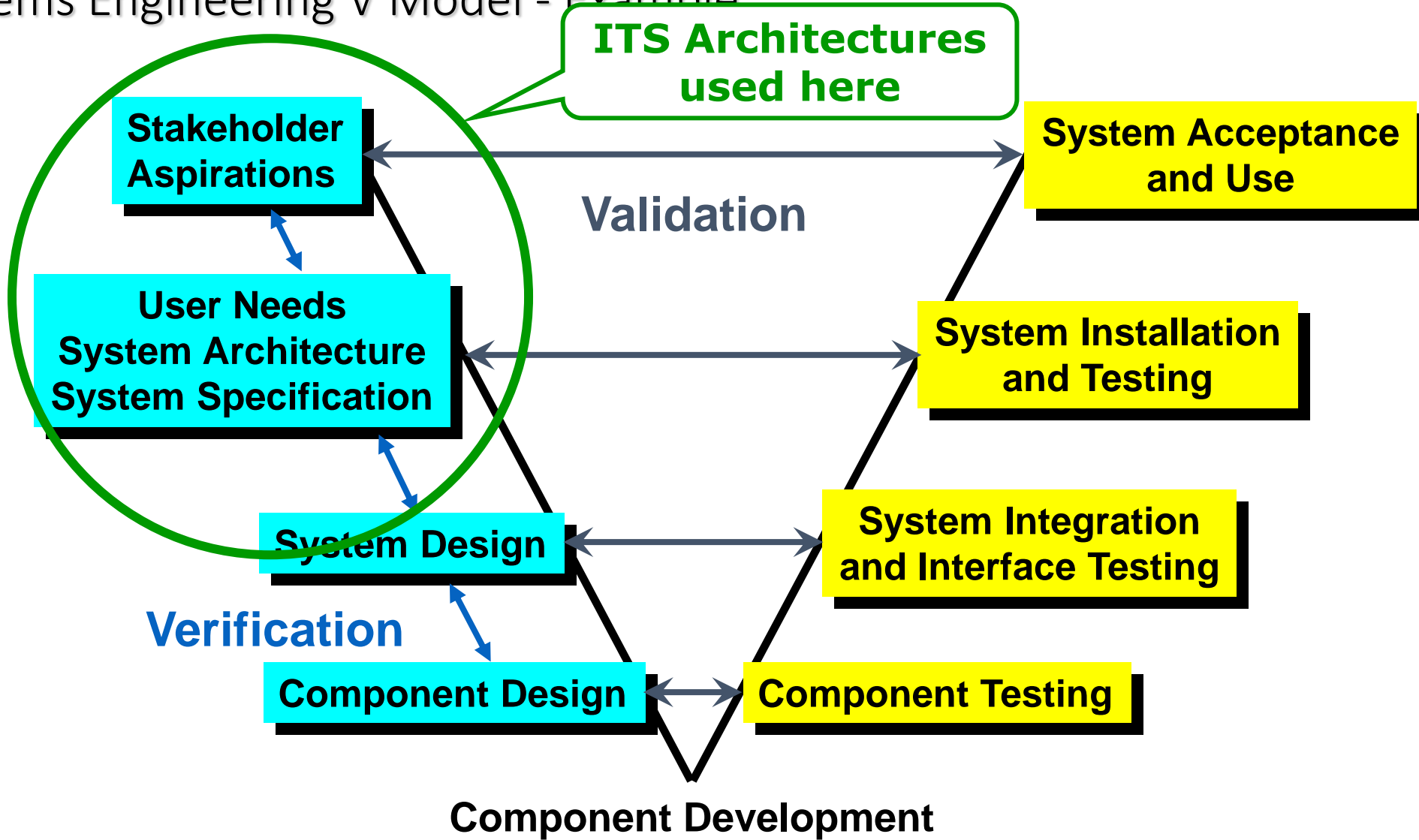
Operational Architecture - Example



Smart Parking Solution - Example



Systems Engineering V Model - Example



The Global Situation of Intelligent Transportation Systems

- ❖ Globally, the ITS industry has experienced major changes due to Covid-19 pandemic, the ongoing battle for action on climate change, the energy and cost-of-living crises impacting millions of people.
- ❖ Other challenges that society is facing are also impacting public transport including labour shortages across sectors and the rise in inflation having major consequences for the local public transport sector. This had impacted the mobility of the people. Adding to these challenges the urgency of reducing transport emissions.
- ❖ Due to Covid-19 pandemic, travelers' behavior have changed, choices have been reduced, the financial income from some ITS applications was reduced especially in Public Transport and there was a lack of political support. However, the ITS sector showed its resilience and strength, which led to this sector to get back stronger and more reliable as it is a people-centric sector.

The Global Situation of Intelligent Transportation Systems

- ❖ Cities specific have experienced major development in their ITS industry, whether ITS is relatively new (after 2000) (e.g., the MENA region) or old (in the 90s) (Europe and US with ITS infrastructure improvement and expansion).
- ❖ The ITS industry has made a conscious effort to continuously innovate in order to serve the people especially with the increase of Smart Cities, Connected Autonomous Vehicles, vehicles electrification, micromobility and on-demand mobility seen in Europe.
- ❖ Each City is Unique



London has one of the largest Intelligent Transport Systems networks in the world, with smart cities, CAV policy in place, Net Zero policy, integrated underground, train and bus systems spanning the city.



London's pioneering new network of express bus services, the Superloop, now circles the entire capital.

- 138km loop connects key locations across outer London improving the outer London bus network
- Superloop services have added more than 6m bus km to London network

London Superloop

Oxford 15-minute city



University of Oxford, UK



Coffee shop on a bicycle, Oxford, UK

The vision in 2040 is that Oxford will be a healthy and inclusive city, with strong communities that benefit from equal opportunities for everyone. Is the 15 minute city the answer for Oxford?



Dubai People Centered City



Dubai ITS Deployment Approach

- Unprecedented infrastructure investment growth and safety has been the main drivers for ITS deployments
 - Public Transport and ITS investment priorities are being accelerated
 - Investment in safe pedestrians' walkways are being initiated and expected to grow with Public Transport deployments.
- Other drivers include the immediate requirements for Automated traffic monitoring and fully adaptive traffic signal control.
- Transport Authorities (Ministries of Transport, Municipalities, Regional Authorities) recognize the need to evolve from transport infrastructure builders to Transport Service Providers/Operators.
- Automatic Traffic safety enforcement systems will continue to expand.
- Mobility as a Service will accelerate with Autonomous Vehicles

Key Messages

- ❖ Resilience and Collaboration are crucial in order to continually progress.
- ❖ Finding the right balance between innovation and regulations is key in ITS
- ❖ Due to the increasing energy prices, ITS policy makers must provide sustainable and affordable solutions, considering alternatives to car-based mobility to reduce emissions
- ❖ As a response to climate change crisis, ITS policy makers must adopt clean and zero-emission fuels.
- ❖ Sustainable ITS should receive sufficient political support in order to face the increase in energy bills focusing on Public Transport
- ❖ ***“Public transport is and will remain the backbone of urban mobility... Fulfilling this role means being available and affordable for all who use it” (UITP)***
- ❖ Sustainability and Innovation do not necessarily require large funds
- ❖ Sustainability and Innovation should be in line with the expectations of the communities
- ❖ Always remember accessibility and inclusion.

Thank you

Zeina Nazer MSc PE MBA

External Expert for DfT

Chair ITS UK (RUC Forum)

Co-Founder Cities Forum

M: +44 777 626 758

Zeinanazer@citiesforum.org

www.citiesforum.org