

EC Perspective on Connectivity and Smart Mobility and the Role of "Digital Co-production/Co-creation" in Transportation

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Roadmap to a Single European Transport Area

Towards a competitive and resource efficient transport system

- **To meet the challenges**, transport has to:
 - Use less energy
 - Use cleaner energy
 - Exploit efficiently a multimodal, integrated and 'intelligent' network
- Curbing mobility is not an option
- **By 2050 reduce emissions by 60%**, and 20% by 2020 (2008 level)
- **By 2050 move close to zero fatalities** in road transport, halving road casualties by 2020



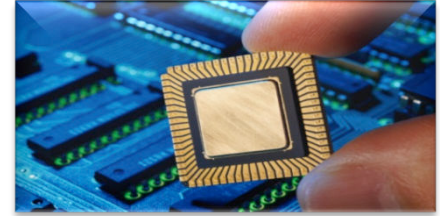
ICT in Mobility – some figures*



- Electronics is the enabler and the driver behind **60% of current vehicle innovations**. For premium vehicles it may be 80%
- Semiconductor content per car is **growing by 4–5% a year**.
- Semiconductor content of an **electric/hybrid car is roughly twice that of than an average car**.
- ICT could account for **40% of value in a FEV**
- Europe may account for **25% of the global FEV sales in 2020**
- Global market for ICT in FEVs is around **15 B€ in 2020** (conservative estimate)

**Excerpts of study on 'Impact of ICT R&D on the Large-scale Deployment of the Electric Vehicle*

What means ICT in Mobility ?



ICT within the vehicle

- Efficient components & systems
- Active & Passive Safety
- Strategic technologies (batteries & e-motors)

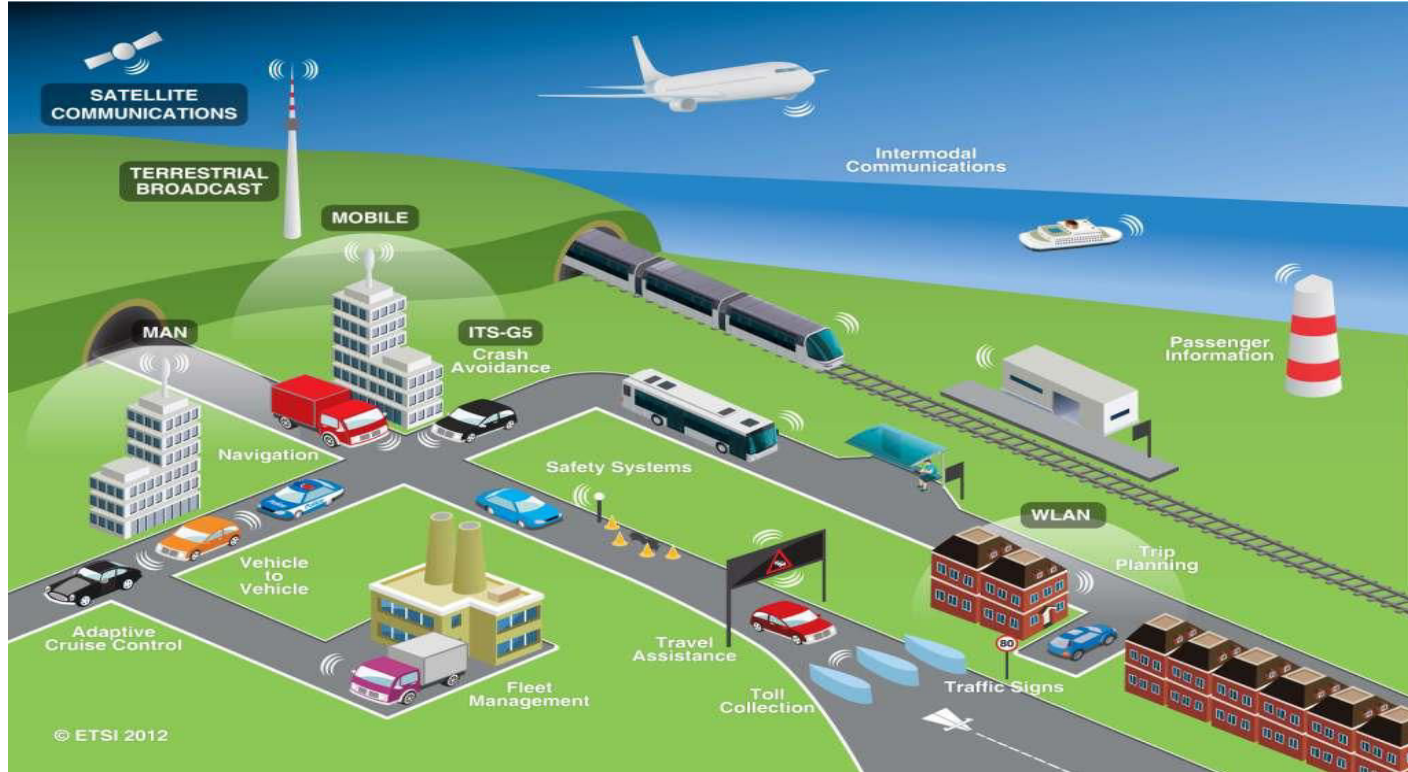
Connectivity (V2X)

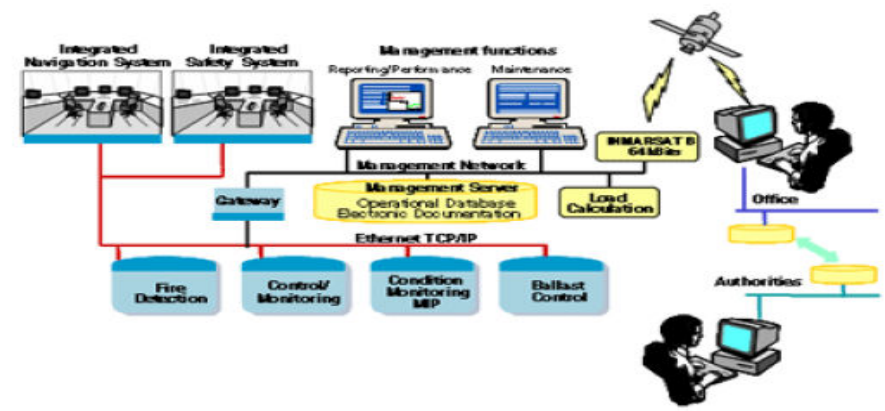
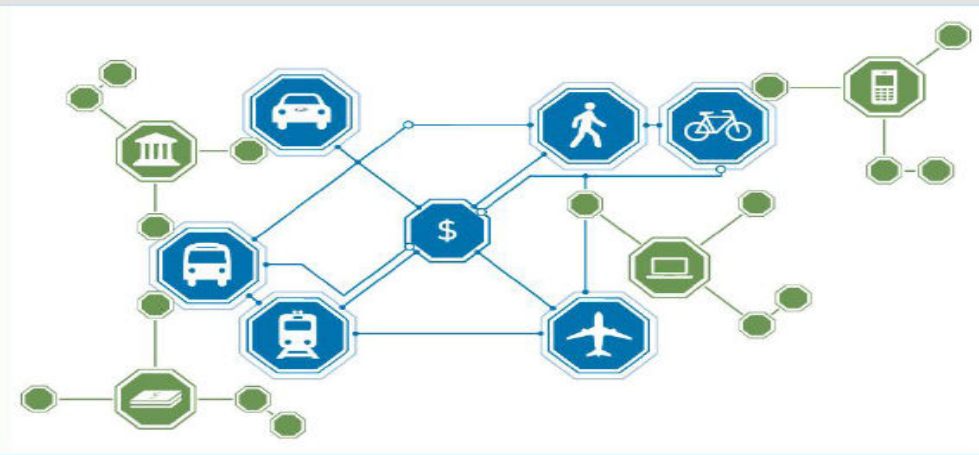
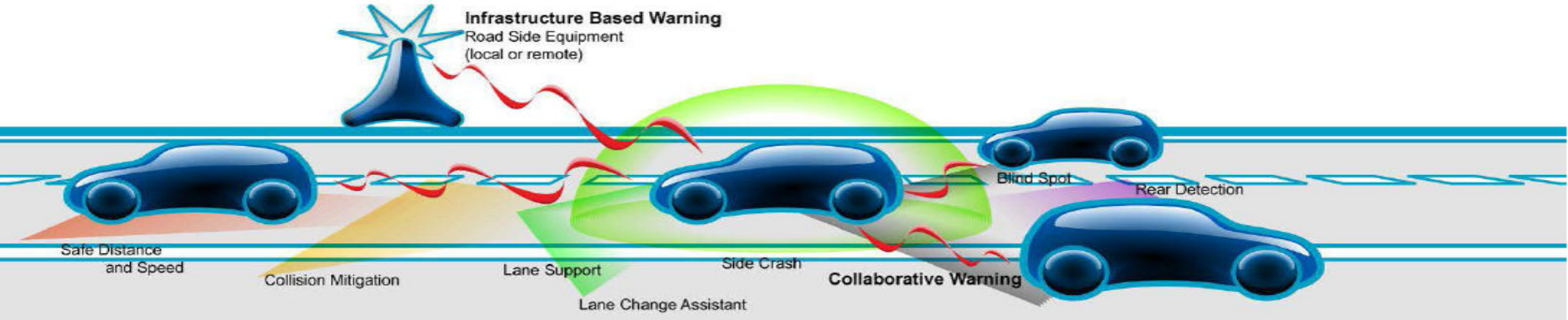
- Integration into smart infrastructures (grid, cities)
- Efficient routing
- Safety
- Services

- ICTs will play a key role in Research and Innovation which will bring excellent research results to market.
- ICTs will enable development of smart intelligent transport systems and interoperable interconnected solutions
- A particular strength is that ICTs allow to pursue an interdisciplinary approach, cross-fertilisation and interoperability.



Connected car?





What does Automation in road transport stand for?

- The automated vehicle should be conceived within a cooperative systems environment:
 - *Equipped with sensors (IoT) and functions to travel around with minimum or no effort by the driver*
 - *The driver stays in the loop and must be ready to take over control*
 - *Communicate and coordinate with other vehicles, the roadside infrastructure, and the transport cloud*

Why do we need automation in road transport?

- Improving safety
 - *Majority of accidents caused by human errors*
 - *Early automated active safety functions already exist (e.g. ABS - ESP)*
 - *Passive safety will always have limitations*
- Energy efficiency
 - *Already displayed by platooning and ACC*
- Optimising existing transport system
- New services enabled by connected automated car



Automated driving:

- In the context of "Vehicle as a service access platform"
- DG CNECT: focus on ICT-aspects of automated driving:
 - Data security (generation, communication, storage, computation)
 - Connectivity:
 - 5.9 GHz dedicated C-ITS band (G5)
 - Via mobile network
 - Cross-sector cooperation and interoperability

❑ **iMobility Forum: WG on Automation**

- Supporting the deployment of intelligent mobility in Europe including stakeholder networking, deployment support, awareness raising and dissemination of results in the field of ICT



iMobility Forum Web site:

www.imobilitysupport.eu/imobility-forum/working-groups/automation

❑ **ERTRAC Technology Platform: Task Force on "Connectivity and automated driving"**

- Preparation of roadmaps on future research & development activities up to 2030



ERTRAC Web site: <http://www.ertrac.org/>



The C-ITS Deployment Platform

Objective: "Developing a shared vision and a roadmap for the Deployment of Cooperative Systems in the EU"

Public-Private partnership: On content, process development and ownership of final outcome

Analysis of cross-cutting blocking factors and enablers: technical, legal, organisational, policy and administrative

Outcome: Building blocks for a "Communication by the European Commission on the Deployment of C-ITS" What has to be done by whom and when? Early 2016

C-ITS: Road to Deployment



Digital Agenda
1001100101011101110200100 2010-2020
for Europe



ITS AP

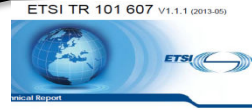
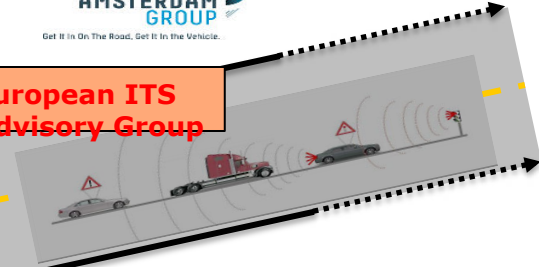
ITS Directive



European ITS Advisory Group

Safety
VSC WG Report

harmonised use of radio spectrum in the 5 875-5 905 MHz frequency band for safety-related applications of Intelligent Transport Systems (ITS)



Release 2

M/453

ETSI Standards on the move

Intelligent Transport Systems (ITS); Cooperative ITS (C-ITS); Release 1

EU-US Standards Harmonization Task Group Report: Feeding ITS Standards Development Organizations - Communication

C-ITS Release 1 list of standards

M/453 F.R.

Rolling Plan



2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

C-ITS standardisation Overview



Stakeholders Groups



Global



Coordination

Monitoring
M/ 453

International Cooperation

Cooperation

Results

Validation & Feedback



European Cooperation



EU and national funded projects



Automated Road Transport: topics and budget – Total EU contribution: EUR 114 Mio

Topic	Title	Action type	Stages	Budget (EUR Mio)	
				2016	2017
ART-02	Automation pilots for passenger cars	IA	2	48	
ART-04	Safety and end-user acceptance aspects of road automation in the transition period	RIA	2		
ART-05	Road infrastructure to support the transition to automation and the coexistence of conventional and automated vehicles on the same network	RIA	2	13	
ART-06	Coordination of activities in support of road automation	CSA	1	3	
ART-01	ICT infrastructure to enable the transition towards road transport automation	IA	2	50	
ART-03	Multi-Brand platooning in real traffic conditions	IA	2		
ART-07	Full-scale demonstration of urban road transport automation	IA	2		

CSA = Coordination and Support Action

IA = Innovation Action; RIA = Research and Innovation Action

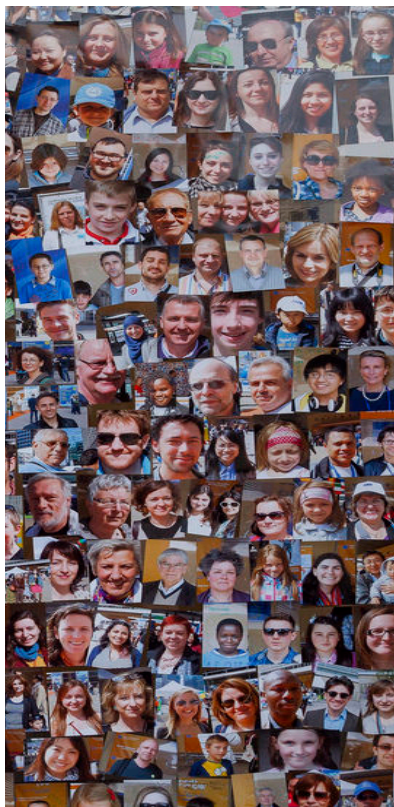
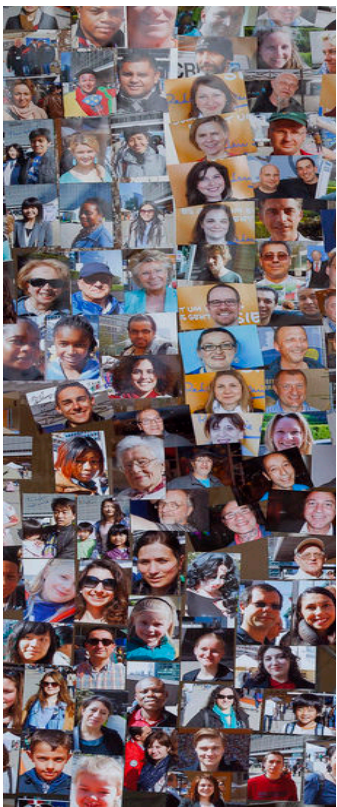


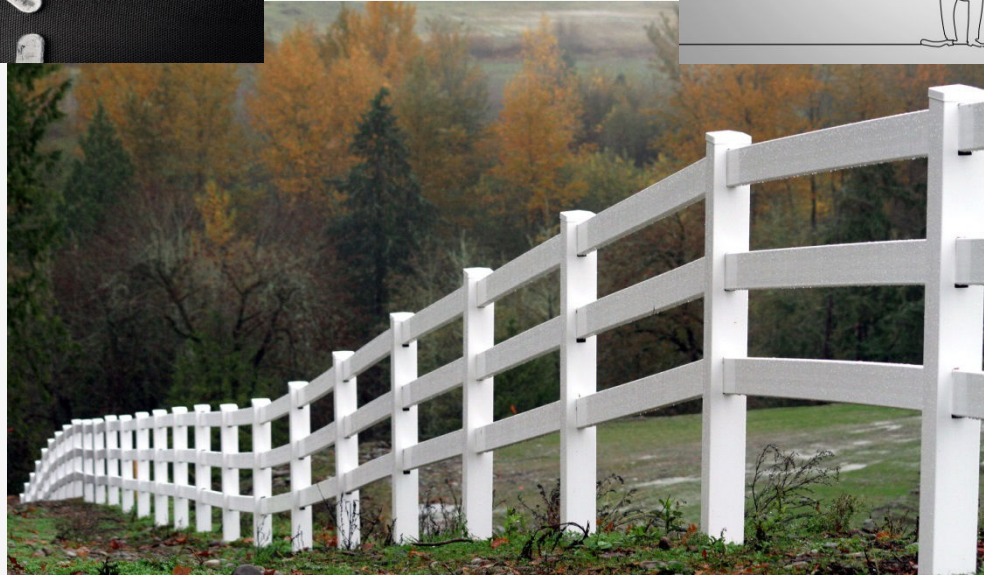
...and there is more to come!



(Workprogramme 2018-2020 in preparation)

Citizens





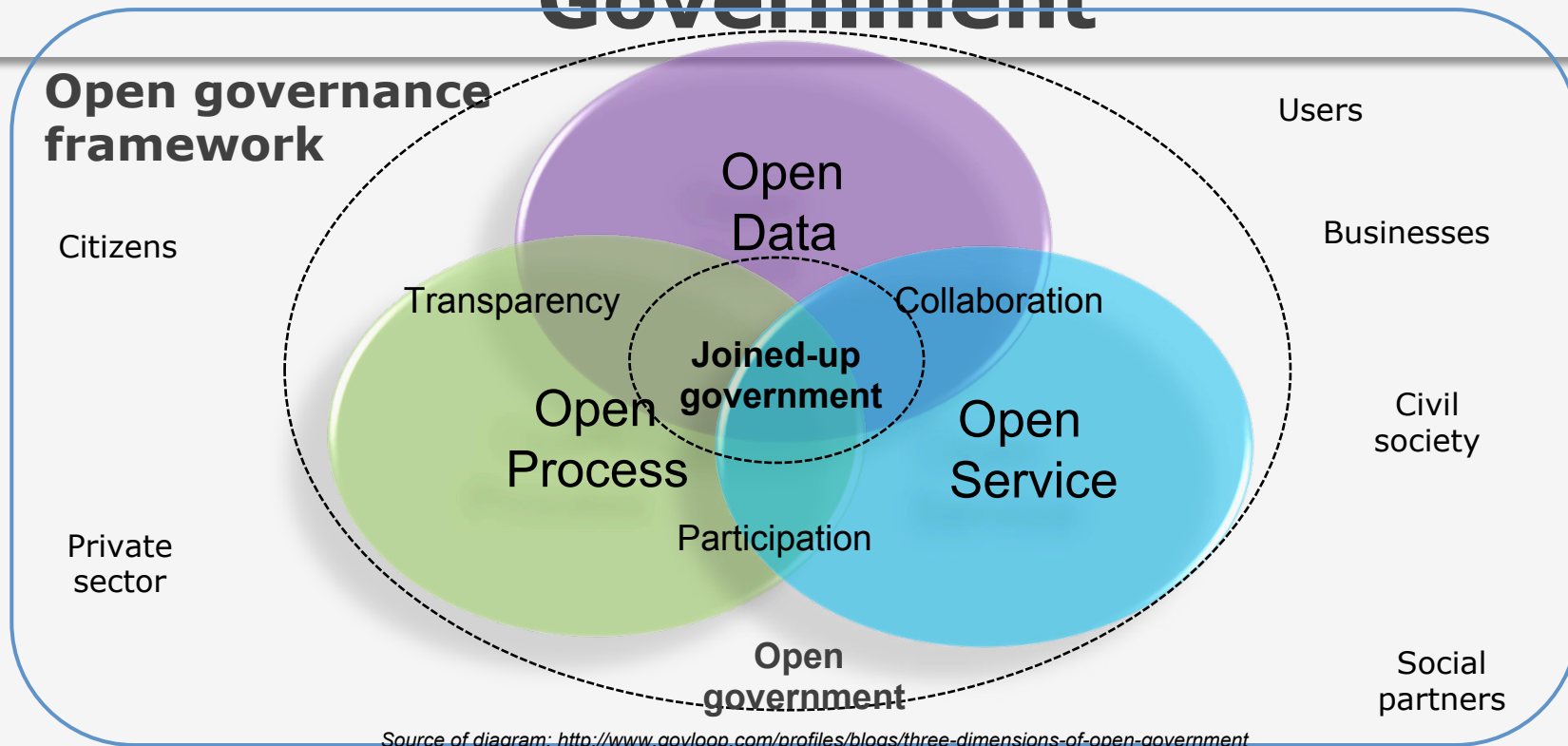
EC Fellowship @ UC Berkeley



Co-production (with digital)

*"Coproductio*n* is a way of planning, designing, delivering, monitoring and evaluating **digital public services** which, with the help of technology, draws on **direct input and domain skills** and experiences from **citizens, service users, civil society organizations and social enterprises** to produce agreed **outcomes** and increase **public and/or social value**".*

Open, Innovative and Collaborative Government

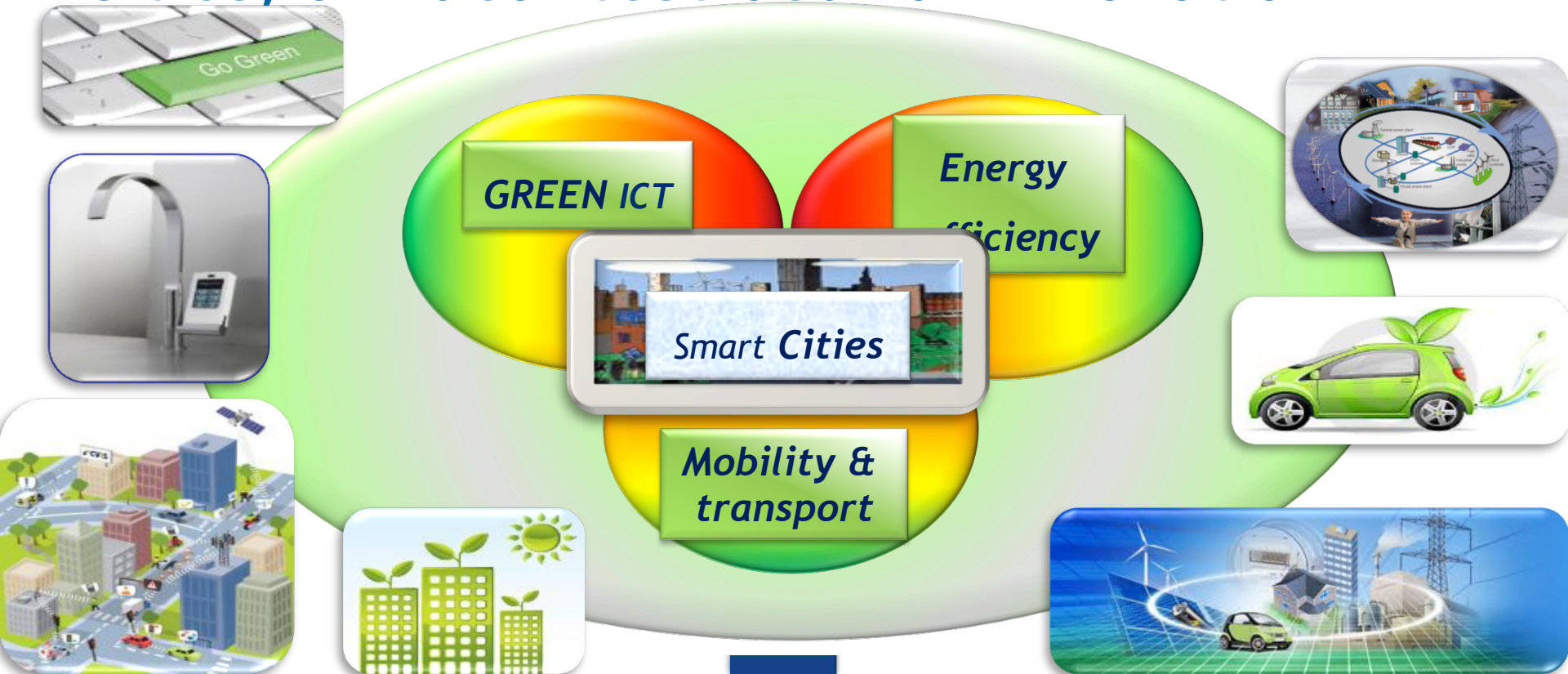


Source of diagram: <http://www.govloop.com/profiles/blogs/three-dimensions-of-open-government>

'Vision for Public Services':

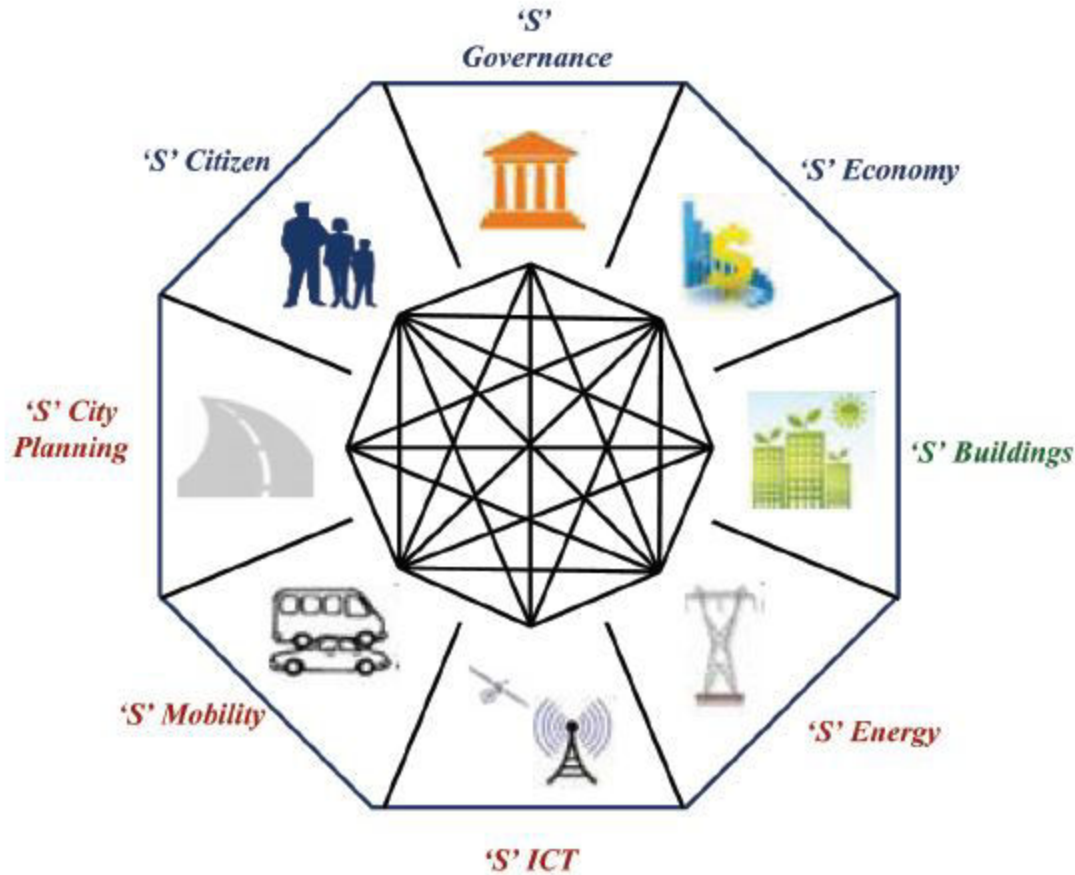
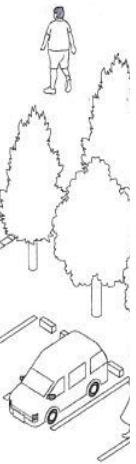
<https://ec.europa.eu/digital-agenda/en/ict-enabled-public-sector-innovation-through-open-government>

Cities, an ideal test bed for innovation



More huma
More yours
A Future We

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to make our enviroi
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Source: Frost & Sullivan



Catch dialogue from equipments

Manage and maintain health

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Four Critical Imperatives to deliver a High Quality Intelligent Transportation System (Source F&S)

UNDERSTAND THE CITIZEN TRAVELLER

- Predicting demand and optimizing transportation assets and infrastructure to better plan routes, schedules, and maintenance; create dynamic plans and models, and execute real-time operations; and enable interconnected travel that provides travelers journey options across a multi-modal transportation system;
- Improving operational efficiency while reducing environmental impact by using current infrastructure and assets without increasing spend; achieving cost and time efficiency by knowing the status and availability of the system; reducing total

The first rule of good service is having a deep understanding of the customer, and ITS technology enables that. When data is shared and aggregated, it can increase the efficacy of decision-making and planning efforts, and ultimately increases customer satisfaction and subsequent adoption of public transit.

Engage them !!!

NOISE TUBE

US

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ON DATA



CITYOS

SMART CITY SOLUTIONS



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from MobileReference

Thank you for your attention

Q&A