ENABLING SMART MOBILITY

INTELLIGENT TRANSPORT SYSTEMS FOR THE CITIES OF TOMORROW

10th International Symposium ""The emergence of the Smart City"| 5th of March 2019

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Deputy Director Smart Mobility
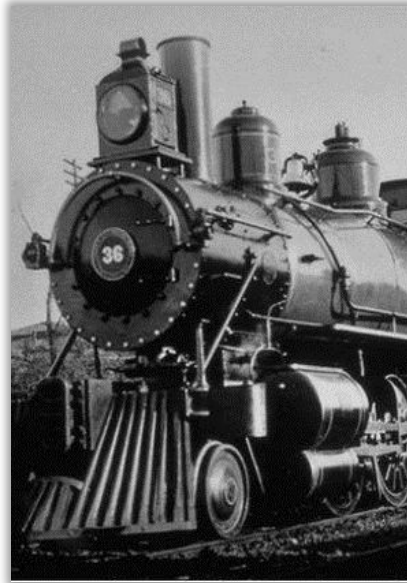Directorate Sustainable Technologies

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Économie

THE MOBILITY (R)EVOLUTION(S)

Reshaping the mobility landscape
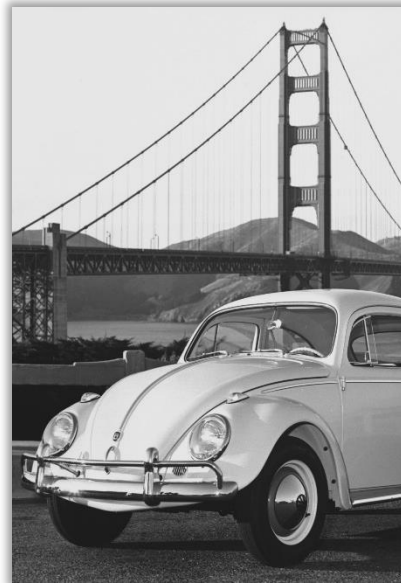
Mobility 1.0	Mobility 2.0	Mobility 3.0	Mobility 4.0
(<XVIII century)	(XIX century)	(XX century)	(XXI century)

Mechanisation
Metallurgy, engineering
Steam and water power

Industrialisation
Mass production & motorisation
Electrification

Digitalisation & Automation
IT and Cyberphysical systems
Ownership → "as-a-Service"

THE RISE OF SMART MOBILITY

Trends, sub-sectors and building blocks

CCAM (Cooperative, Connected and Automated Mobility)

Cooperative Mobility

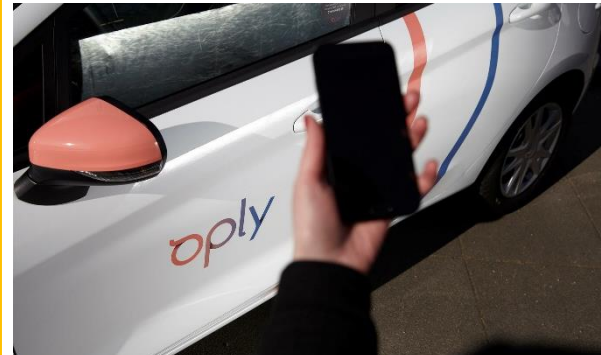Connected Mobility

Automated Mobility

Multimodal Mobility/ MaaS

Shared Mobility

Green Mobility

CASE (Connected, Automated, Shared, Electric)

The Smart Mobility Stack

Need for cooperation and coordination

Disruption trickles down

Services

Products / Vehicles

Digital Infrastructure

Physical Infrastructure

How people consume mobility

Navigation, Routing, Multimodal Planning, X-Sharing, e-Hailing, Payment / e-Ticketing, Mobility-as-a-Service, Mobility management, Insurance, …

Which (physical) means are available to ensure mobility

(e)Bicycles, (e)Scooters, Buses, Shuttles, Tram, Trains, Cars, Motorbikes, …

Flow of data / information

Connectivity / Networks, Data storage / Database, Platform(s), Computational power, Artificial Intelligence, Cybersecurity, …

Flow of people (and goods)

Roads, bridges, road signaling, road markings, parking facilities, train stations / bus stops, charging stations, buildings, …

Policy, Regulation & Incentivisation

(Traffic) Laws, Panning and design, Fair and undistorted practices, Data availability, Interoperability, (Public) Funding, Social acceptance, …

THE SMART MOBILITY ECOSYSTEM

A Complex System-of-Systems with Multiple Stakeholders

New business models

Sales & Distribution
Aftermarket
Rental
Leasing
Financing
Insurance
…

Automotive

Telecom & ICT

Networks
Data Centers
Platforms
Electronics
…

New → Value → Chains

Smart Mobility

Building & Construction

Planning and modelling
Logistics management
Equipment management
Scheduling
…

Bus, Rail, Taxicab, PRT, etc
Mobility Planning
Traffic Management
Infrastructure Management
…

Public transport

Energy

Power supply
Distribution grid
Charging network
Energy storage
…

…

Citizens / Users | Local Communities | Policy makers & Regulators | Public Institutions | Manufacturers | Suppliers | Service providers | Research | …
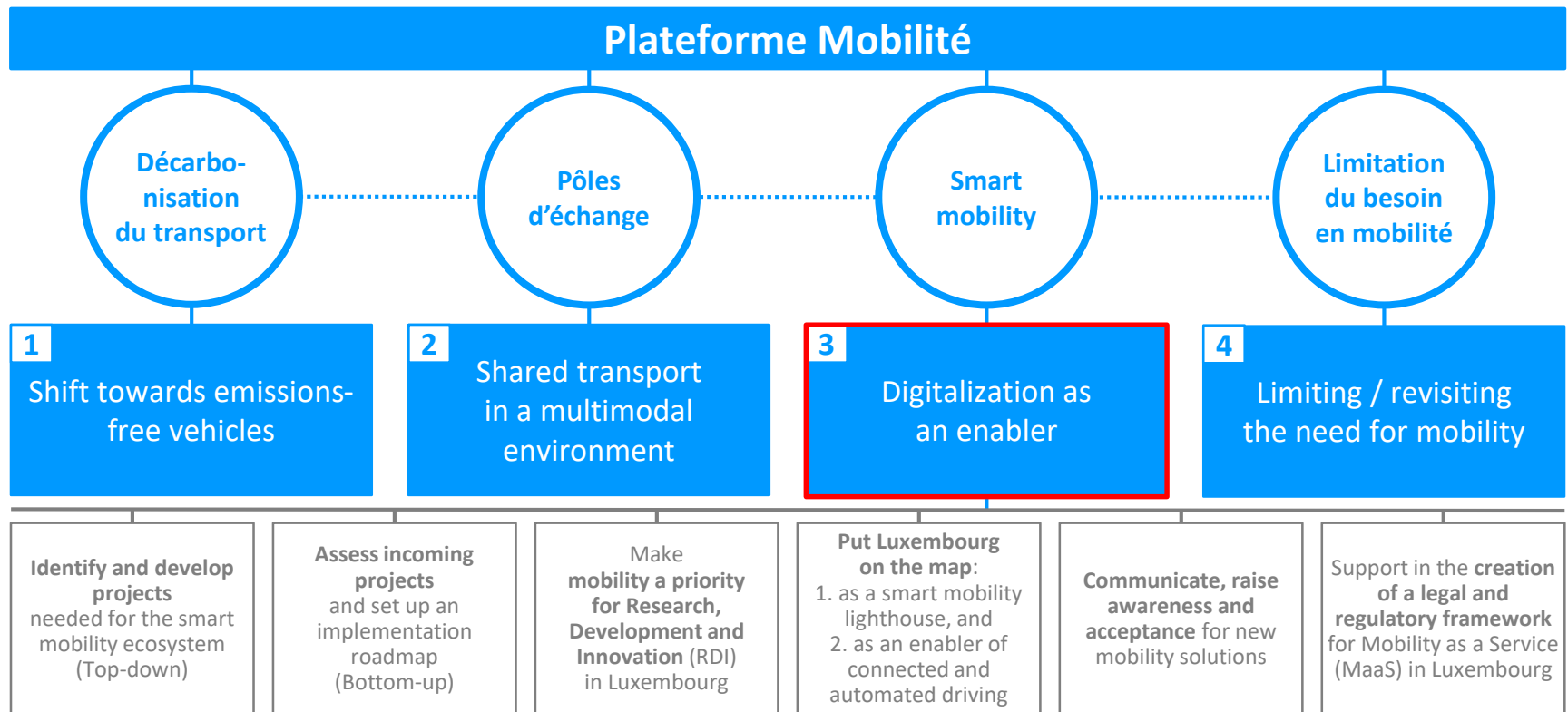
MULTILATERAL COOPERATION BETWEEN STAKEHOLDERS

Luxembourg Bodies working together on the Topic of Smart Mobility

TIR AND THE MOBILITY PLATFORM

Implementing the main subjects to achieve the "vision for 2050"

Plateforme Mobilité

Working Groups

- Décarbo-nisation du transport
- Pôles d'échange
- Smart mobility
- Limitation du besoin en mobilité

Main Subjects

1 Shift towards emissions-free vehicles

2 Shared transport in a multimodal environment

3 Digitalization as an enabler

4 Limiting / revisiting the need for mobility

key areas of activity

| **Identify and develop projects** needed for the smart mobility ecosystem (Top-down) | **Assess incoming projects** and set up an implementation roadmap (Bottom-up) | Make **mobility a priority for Research, Development and Innovation** (RDI) in Luxembourg | **Put Luxembourg on the map**: 1. as a smart mobility lighthouse, and 2. as an enabler of connected and automated driving | **Communicate, raise awareness and acceptance** for new mobility solutions | Support in the **creation of a legal and regulatory framework** for Mobility as a Service (MaaS) in Luxembourg |

MOBILITY INNOVATION CAMPUS

Project type   Science park

Strategy   Public – Private partnership in open innovation and shared R&D on behalf of next generation green, connected and automated mobility
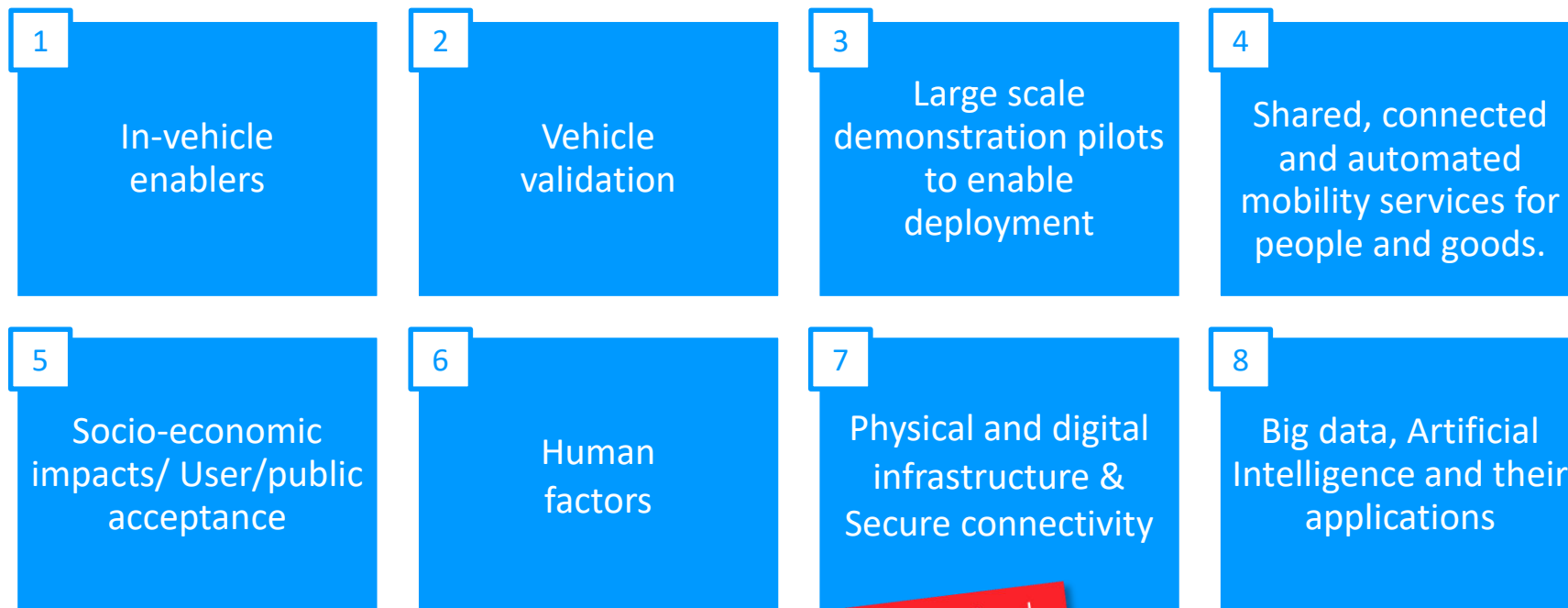
Capacity   Total surface 14 hectare of which 8 hectare available for new investors, infrastructure capable for hosting 4.000 engineers and scientists daily – business incubation surface 1.400m2

Planning   First inauguration (IEE): Q2 2019, Technoport mobility Incubator 2021

THE EUROPEAN COMMISSION STRATEGIC TRANSPORT RESEARCH AND INNOVATION AGENDA (STRIA)

Thematic areas for Connected and Automated Road Transport

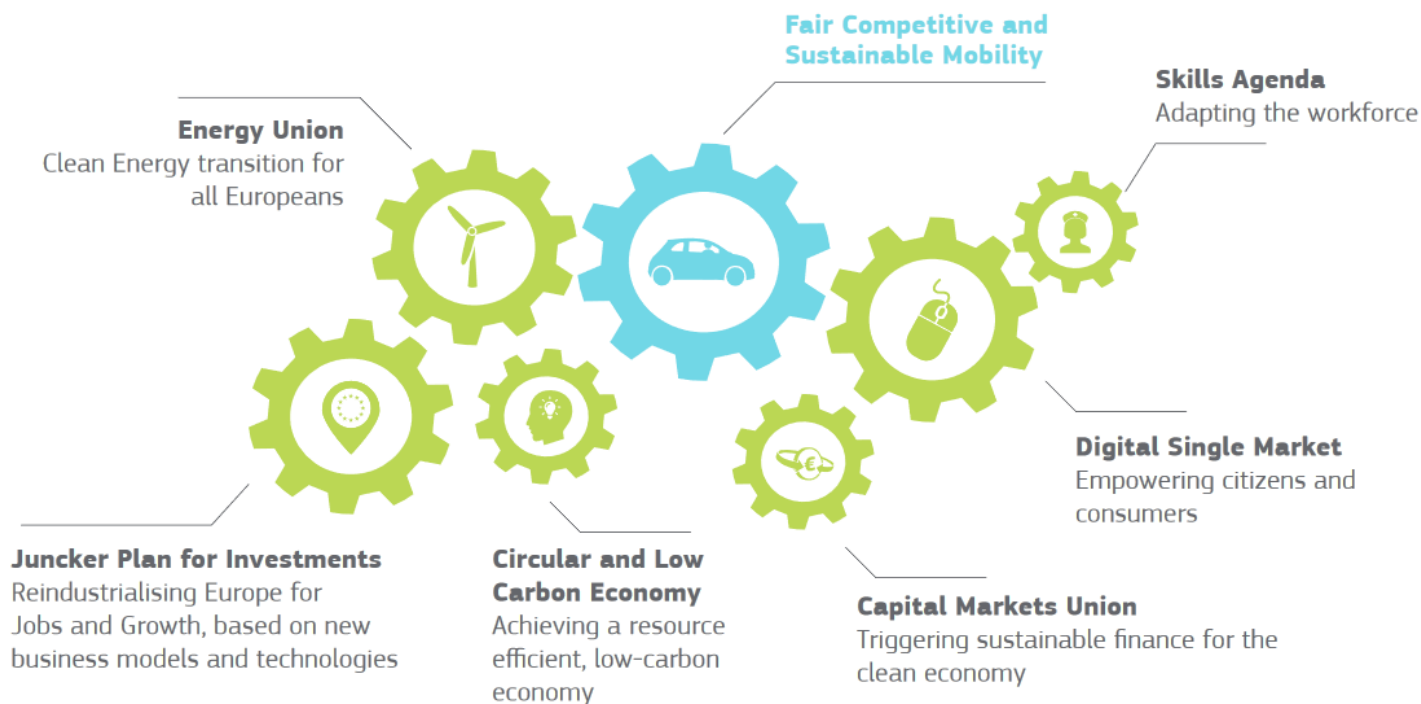|			
1 In-vehicle enablers	**2** Vehicle validation	**3** Large scale demonstration pilots to enable deployment	**4** Shared, connected and automated mobility services for people and goods.
5 Socio-economic impacts/ User/public acceptance	**6** Human factors	**7** Physical and digital infrastructure & Secure connectivity	**8** Big data, Artificial Intelligence and their applications

Integrated Roadmap on Connected and Automated Transport by the end of 2018

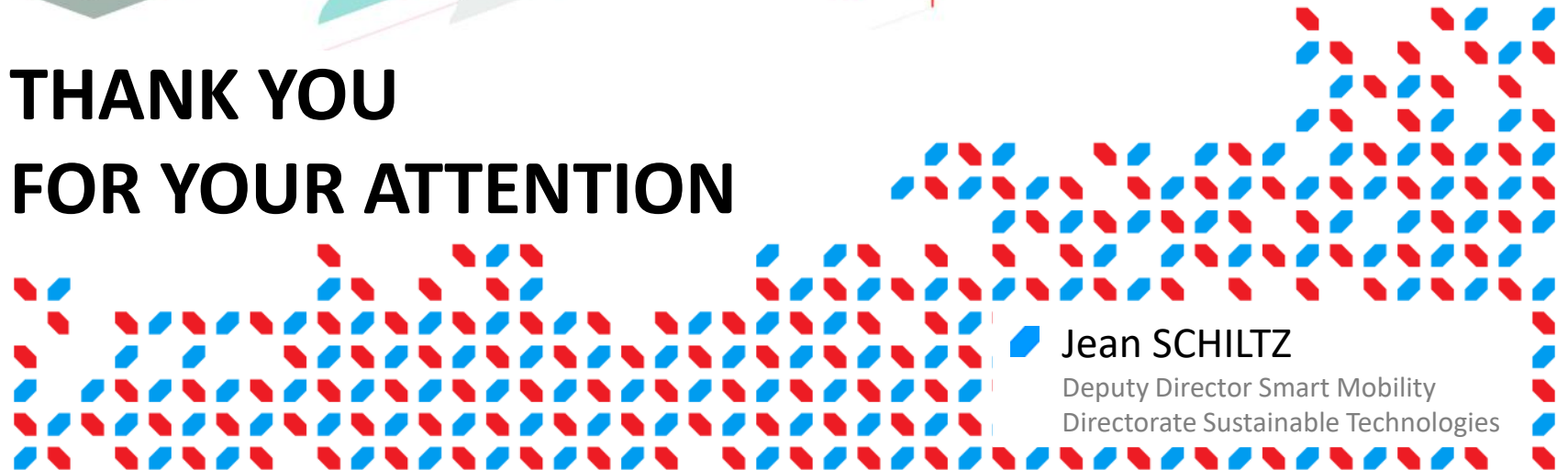# THE EUROPEAN COMMISSION « EUROPE ON THE MOVE » INITIATIVE

Towards a Safe, clean, connected and automated mobility

Fair Competitive and Sustainable Mobility

Skills Agenda
Adapting the workforce

Energy Union
Clean Energy transition for all Europeans

Juncker Plan for Investments
Reindustrialising Europe for Jobs and Growth, based on new business models and technologies

Circular and Low Carbon Economy
Achieving a resource efficient, low-carbon economy

Capital Markets Union
Triggering sustainable finance for the clean economy

Digital Single Market
Empowering citizens and consumers

Image Source: European Commission

THANK YOU
FOR YOUR ATTENTION

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