MOBILITY 4 EU

HORIZON 2020
EU COORDINATION AND SUPPORT ACTION

ACTION PLAN FOR THE FUTURE OF MOBILITY IN EUROPE

NOVEL AND INNOVATIVE MOBILITY SOLUTIONS

WORKSHOP HANDOUT

THIS HANDOUT INCLUDES:

PART #1
PROJECT INTRODUCTION

 # KEY FACTS
CSA - COORDINATION AND SUPPORT ACTION

FROM JANUARY 2016 UNTILL
31 DECEMBER 2018

 # OBJECTIVES
MOBILITY4EU establishes the future vision of a transport system in 2030 in Europe by:

- Identifying and analysing societal drivers
- Developing an action plan and a road map
- Engaging relevant stakeholders and the general public in a participatory project

 # PROJECT WEBSITE
www.mobility4eu.eu

Mobility4EU is a Coordination and Support Action of the European Commission started in January 2016 and lasting for 3 years, until 31 December 2018. The project will deliver a vision for the European transport system in 2030 and an action plan including a roadmap to implement that vision. Recommendations for tangible measures in research, innovation and implementation targeted towards various stakeholder groups will be derived.

*The work towards that vision and action plan is based on the identification and assessment of **societal challenges** that influence future transport demand and supply and the compilation of a portfolio of promising cross-modal technical and organisational transport solutions.*

*The entire process from studying trends and options for solutions, developing a vision and finally the action plan will be organized within a structured **participatory approach** that aims to engage a broad stakeholder community into the consultation processes.*

*This will be achieved by employing a structured tool, the **Multi-Actor Multi-Criteria Analysis (MAMCA)**, and an accompanying story mapping process that supports the process in a more creative and interactive way.*

Mobility4EU engages a broad stakeholder community into the consultation processes of the project and in implementing its results.

*Within the first phase of the project, societal challenges, requirements and needs that will influence the future transport demand and supply have been researched, assessed and discussed within an interactive workshop. The results have been formulated within **9 trends that impact transport and mobility demand** [see PART #5].*
More information on this first workshop as well as details on the trends are given below [see PART #4]. The second step is to compile a portfolio of promising novel and innovative transport and mobility solutions. This will also be the topic of the second workshop [see PART #2].

PART #2 SECOND WORKSHOP

NOVEL AND INNOVATIVE MOBILITY SOLUTIONS

#OBJECTIVES

The intention of the workshop is to identify novel and innovative solutions that answer the societal requirements and demands on mobility.
The workshop brings together experts for innovations in transport of people and goods across all modes to discuss novel and innovative solutions that are currently being researched or started to be implemented. Hence, the agenda focusses on bringing in impulses from external fields as big data, sports innovation and gamification and then to facilitate interactive group work and plenary discussions.

Within the group work, a poster board for each trend identified in the Mobility4EU project will be supplied. A short description of these trends can be found below in this document [see PART #5].

On each poster board there will be space to provide innovative solutions for the modes:

- → ROAD
- → RAIL
- → AIR
- → WATER
- → (PERI-) URBAN AND RURAL MOBILITY
  (including multimodality, walking, cycling)
- → (INTERMODAL) FREIGHT TRANSPORT
- → OTHERS

#INTERACTIVE SESSIONS

The participants will be asked to walk around, engage in discussions and fill these boards with solutions to the demands that the respective trend creates. Furthermore, there will be possibilities to indicate opportunities, challenges or timeframes for these solutions. Besides the collection of novel solutions that are currently being researched or started to be implemented, new ideas can be generated interactively and also collected on the board.
The "inventing" of new solutions within the discussion is absolutely welcome. In the plenary, the inputs from the boards will be discussed with all participants and thereby clustered on the boards. The outcome of the workshop will be an opportunity map for novel and innovative solutions in all transport modes listed above that has been generated collaboratively on the boards. This opportunity map will be the second part of the storymap composed in the project. The storymap is explained below in more detail [see PART #3].

#OUTCOMES

This opportunity map will be layouted in a graphic representation and be published on the website together with the context map that has been produced in the first workshop.

PART #2 SECOND WORKSHOP

WORKSHOP AGENDA

MODERATION Gereon Meyer, VDI/VDE-IT

09:45	Registration & Coffee
10:00	**Opening Remarks**, tba, EC **The Project MOBILITY4EU**, Beate Müller, VDI/VDE-IT
10:20	**Keynotes** **Big Data in Transport** tba, Transport Catapult **Impulses from Sports Innovation,** René Wijlens, Sports & Technology **Gamification in Transport** Stefan Schaffer, DFKI / Streetlife Project **Application of Robotics in Transport** David Bisset, Robotics ETP
11:20	**Portfolio of Mobility Solutions (WP2) & Aims of the Workshop**
11:40	**Interactive work and discussion on novel and innovative solutions and on Opportunity Map**
12:30	**Lunch**
13:30	**Interactive work and discussion on novel and innovative solutions and on Opportunity Map**
15:45	**Conclusions**
16:00	**End of the event**

PART #2 SECOND WORKSHOP

ATTENDEES

Christoph Schneider, Munich Airport
Michail Kyriakopulos, European Commission/DG R&I, Clean Sky
Riccardo Groppo, Ideas & Motion S.E.
Paolo Guglia, Fincantieri
Sergio Barbarino, P&G
Oleg Kamberski, IRU Projects ASBL
René Wijlens, Sports and Technology
Nick Jones, Transport Systems Catapult
Stefan Schaffer, DFKI - German Research Center for Artificial Intelligence
David Bisset, Robotics ETP
Richard Foggie, Knowledge Transport Network
Kevin Mayne, European Cycling Foundation
Oliver Drewes, Dutch Railways
George Holley-Moore, ILC-UK
Alain L'Hostis, Ifsttar
Juho Kostiainen, VTT
Cristina Pou, ATM
Imre Keseru, VUB
Jonas Linder, Siemens
Cornel Klein, Siemens
Ineke van der Werf, Rover
Teresa de la Cruz, ZLC
Lucile Mendoza, HUMANIST
Kay Plötner, Bauhaus Luftfahrt
Jochen Langheim, ST
Stefania Grosso, Osborne Clarke
Simon Spooner, Osborne Clarke
Yves Stans, Osborne Clarke
Linda Napoletano, Deep Blue
Alessia Golfetti, Deep Blue
Eleni Chalkia, CERTH
Joachim Skoogberg, Echandia Marine
Beate Müller, VDI/VDE-IT
Gereon Meyer, VDI/VDE-IT
Annette Brückner, VDI/VDE-IT

PART #3
STORY MAPPING PROCESS

The project uses a powerful visualisation technique of story mapping. The story mapping process facilitates discussions during participatory workshops and the information sharing through a graphic visualisation. In this way project partners, associated partners and external stakeholders can easily follow up the entire process.

A series of workshops will contribute to the story mapping process:

WORKSHOP 1 *Societal requirements and current challenges for transport*	**CONTEXT MAP** *Visualises societal requirements and current challenges for transport*
WORKSHOP 2 *Novel and innovative mobility concepts and solutions*	**OPPORTUNITY MAP** *Visualises novel and innovative solutions for transport system and mobility*
WORKSHOP 3 *Vision for transport 2030*	**VISION FOR TRANSPORT IN 2030** *Visualises a vision panorama for future transport system*
WORKSHOP 4 *Action Plan*	**ROADMAP** *Visualises the implementation path towards the vision*

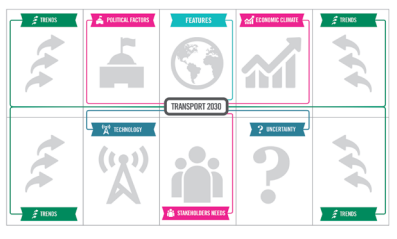
These workshops validate, expand and enrich the work done in the project. The final graphic representations of the individual parts of the storymap will therefore contain the results from both the workshop and the topical work in the project. All parts of the storymap will be published on the project website and will serve to keep the community updated on the project results and the advancement toward the action plan.

PART #4 FIRST WORKSHOP

SOCIETAL REQUIREMENTS AND CURRENT CHALLENGES FOR TRANSPORT

#TOOLS

Template of the context map



The first workshop was held on the 3rd of May 2016 in Berlin. The objective was to validate the first project results on trends, societal drivers and their implications on mobility demand.

Four discussion sessions were organised following the *template of a Context Map* in order to create a comprehensive landscape of societal trends and factors that will influence the future transport system.

SESSION 1

Which key words would best describe a vision for transport in 2030?

The discussion started by collecting keywords that would best describe a vision for future transport.
The result was a compilation of positive and negative features of transport in 2030.

SESSION 2

Which political, economic and societal factors will probably determine mobility demand in 2030?

The second session of the workshop was based on free brainstorming and thorough discussion with other participants for the identification of societal, political and economic factors.

SESSION 3

Which technology frameworks will probably enable the supply transport solutions in 2030? Which uncertainties will remain?

The third session was focussed on the identification of technological developments and uncertainties that will determine the mobility demand in future transport system.

SESSION 4

Which factors will drive the evolution of the transport and mobility system within the next 15 years?

Finally, trends influencing transport were discussed and added to the Context Map in a discussion with all partners.

PART #5
TRENDS

Nine trends are shaping business and society, and these macroeconomic forces will have a significant impact on global mobility.

#1 DISTRIBUTION OF WEALTH AND LABOUR MARKET DEVELOPMENTS

*The implementation of **industry 4.0** will lead to an increase in productivity. Employees' expectations, devices innovation and faster connectivity are converging to **transform the way we do business**. This will require **more flexibility in labour conditions and restructuring in working arrangements**.*

*Needs and requirements on public transport (e.g. patterns in time, frequency and distance, "peak-hours", requirements on affordability, flexibilities in tickets etc.) will also change due to the **shifts in economic power and shrinking middle class in EU.***

*Emerging economies are lifting millions out of poverty while also exerting more influence in the **global economy**. These developments and growing **e-commerce**, will **increase** the amount of **freight** and change the patterns of loads, frequency, time of delivery, distances.*

#2 INCLUSIVE SOCIETY, PERSONALISATION, ACCESSIBILITY

*Predominantly **aging**, but also **migration** are the main demographic trends in Europe. The goal of **social inclusion** ensuring wide opportunities and resources for everyone to **participate** fully in economic, social and cultural life, will pose great challenges also to transport providers.*

*The value of the **consumer experience** includes the design of environment, services, and products that are responsive to citizens' needs and desires. Customer-centric **products** and **services** will be increasingly demanded. They will be based on a wealth of information about the individual passengers and their **needs.***

*Increased awareness of **environmental** concerns is engaging society in more sustainable patterns of behaviour. Public focus on health and wellness is shifting mobility choices towards more **active modes** such as walking and cycling.*

#3 URBANISATION AND SMART CITIES

***Urban space** has become very dominant in the European geography. Growing and extending cities lead to the emerging concept of city-regions, which combines several spatial scales and imposes different transport modes. This impacts demands on personal and freight transport. The resulting de-centralization of logistic facilities and the growing demand for extending **transport networks** is more and more seen as an issue by urban and regional planners and requires novel business and financing models.*

*The idea of Smart Cities is rooted in the creation and **connection** of **human** capital, **social** capital and **information** and Communication technology **infrastructure** to generate greater and more sustainable economic development and a better quality of life. The implementation of the smart city will further push the **digitization** and deployment of new technologies in **transport**.*

#4 ENVIRONMENTAL PROTECTION: CLIMATE CHANGE, POLLUTION AND RESOURCE AND ENERGY EFFICIENCY

Climate change, ***air pollution***, *and* ***noise*** *are gaining importance within society. Carbon emissions will be subject to* ***tight regulations*** *and stronger* ***price mechanisms***. *Stringent regulations on emissions may affect the planning and operation of transportation systems, with a preference for* ***greener materials*** *and* ***modes of travel***. *Vehicles will have to adapt to these regulations and road infrastructure will have to accommodate new vehicle and* ***fuel technologies***.

The resources required to sustain current levels of economic growth may not be available over the next decades. ***The implementation of the circular economy***, *where products and resources are* ***reused*** *to extract their maximum value rather than entering the waste stream, is strongly growing in society and industry, as well as reshoring and local sourcing. Changes in preferred transport options and for demand on freight will be triggered.*

#5 DIGITAL SOCIETY AND INTERNET OF THINGS

According to the International Transport Forum, by 2050 there will be around three to four times as much global passenger mobility (compared to 2000) and 2.5 to 3.5 times as much freight activity. Employing novel ICT and especially the IoT, transportation modes will ***communicate*** *with each other and with the environment. Together with* ***big data*** *applications the way for truly* ***integrated*** *and* ***inter-modal transport*** *solutions is paved. This maximizes efficiency gains and allows* ***infrastructures*** *to be designed and operated in a more integrated way. Mobility will be more integrated, efficient, comfortable and eco-friendly.*

Robotics *and automation will play an increasing role in the* ***delivery*** *of transport services, security and infrastructure maintenance. A wider deployment of automated systems in cities could also lead to a significant increase in the* ***24h availability*** *of products and services.*

Due to speed and access to data, passengers will expect certainty in terms of ***time***, *so reliable and accurate* ***real-time information*** *will be key, and they will assume* ***optimal pricing***. *New uses of* ***travel time*** *will be possible.*

#6 NOVEL BUSINESS MODELS AND INNOVATION IN TRANSPORT

New societal and technology trends such as the growing demand of personalised offers, changing ownership models, new usage of transport as well as the increasing integration between information and communication technologies with the transport system will lead to the demand of new and innovative business and financing models for mobility solutions. ***Sharing economy*** *and* ***collaborative*** *consumption is substituting ownership models and has great impacts also in transport of people and freight. Sharing economy focuses on* ***redistribution***, *sharing and reuse of excess capacity in goods and services.*

Stakeholder ***engagement*** *can be a powerful tool for cities to find solutions to complex issues.* ***Community*** *involvement in urban planning processes helps tailor developments to the* ***needs*** *of communities, increases* ***commitment*** *and provides valuable location-specific insights.*

#7 SAFETY IN TRANSPORT

*Safety systems will even more than today be integrated with business management systems, ensuring that **safety** is **built-in by design** and that they are efficient, effective and dynamic enough to adapt and respond to fast changing and evolving threat and risk scenarios. Increasing investments in safety, and changes in the nature of liability will have a fundamental impact on insurance industry.*

#8 SECURITY IN TRANSPORT

*The security concepts resilient against attacks will be very strongly researched, developed and implemented throughout the **global transportation system** including infrastructure and equipment design and materials. They will need to also address human and cultural aspects. The internet and new technologies will inevitably increase the risk for cyber threats.*

#9 LEGISLATIVE FRAMEWORK

*The belief that mobility should be solely regulated by a single actor, commonly the local authority, will be gradually abandoned. Tackling mobility necessarily implies to find a **sustainable** and **coherent balance** between the necessity to develop an **efficient network** and the difficulty to **preserve the surrounding environment** against nuisances of all kinds: pollution, noise, deterioration of the network, public disturbance, etc.*

*Technological developments obliged the legislator to review and sometimes reform classical business schemes in place. The reforms have been both a **reaction** and a **trigger to changes** in the transport sector. Uber, together with the growing systems of sharing economy and automated vehicles, lead to novelties in **labour law**, issues of **insurance law** and to new forms of **self-employment**.*