The aim of the Scenario Building Workshop of Mobility4EU is to create four plausible scenarios for the future of mobility in Europe in 2030 focusing on societal drivers and solutions that respond to them.

Each scenario is a description of future trends and technological, organisational or policy-related solutions. It is based on different assumptions representing diverse possible future development paths. As a preparation for the workshop we have created four preliminary scenarios that are introduced in this handout. They are not prescriptive; rather they provide a starting ground for discussion.

The scenarios are based on the possible evolution of a number of key factors or driving forces. They have been identified through desk research and stakeholder workshops. The scenarios incorporate a selection of the 29 major trends that influence mobility and a collection of technological, organisational and policy-related solutions that respond to these trends.

We have identified four scenarios:

1. MOBICORP
2. DIGITAL NOMADS
3. TECHNOPHOBIA
4. MINIMUM CARBON

Unlimited consumption, individualism, global citizens, flexibility,

Unsupportive, protectionist, fragmented

Supportive, global, interoperable

Responsible consumption, cooperation, local citizens, sharing
The migrant crisis significantly weakened European cooperation. While the pressure of climate change continues to rise, there is no strong common European policy to reduce greenhouse gas emissions. Security in all walks of life is a major concern, several countries re-establish border controls within the Schengen zone.

Europe's GDP grows much slower than that of the rest of the world. Industry and consumption will increasingly rely on production outside of Europe and increase demand for intercontinental freight flows.

Citizens want to enjoy the benefits of the digital and technological revolution. Demand for information and online services to book and pay for mobility services is high especially from the younger generations. With the proliferation of flexible work arrangements such as telework, flexitime and part-time work, traditional peak-hour commuting declines. The changing travel habits are, however, only slowly addressed by the public transport monopolies and the few large, international mobility providers ('Mobicorps'), which control most of mobility related data collection and management and services (e.g. car-sharing, ride-sharing services). It is difficult for new private actors and mobility innovators (car-sharing, mobility as a service) to enter national markets due to strict regulations on labour and public service provision. Therefore, there is no significant increase in the share of sustainable transport modes. The deployment of autonomous vehicles is hindered by the lack of supranational regulations. Standardisation of vehicles and infrastructure as well as the improvement of interoperability of transport infrastructure across member states' borders is difficult.

Globalised businesses ('Mobicorps') own, manage and process the immense amount of data produced by the transport infrastructure, vehicles and users. Well-established big data analytics techniques and data from Internet of Things devices makes real-time traffic optimisation and capacity improvement possible. City governments, however, rely completely on the big data integrators for the management of their intelligent transport systems at a high cost due to the lack of expertise. Nevertheless, fragmented local regulations and different priorities in transport policy in the member states force these firms to adapt their products and services to local markets with increased cost and longer time needed to introduce them. This also prevents the development of cross-border mobility services and payment systems. The emergence of smart cities and standardisation of solutions such as charging infrastructure for electric vehicles are slow.

Local players in the transport sector (taxi companies, state owned public transport operators, regional infrastructure managers) try to slow down the wider deployment of disruptive business models (e.g. ride-sourcing and ride-sharing) to preserve their business models. Car manufacturers and big oil producers exploit the lack of common policy and delay the deployment of electric vehicles.

Local and peer-to-peer initiatives to share mobility resources (parking, driving, cars, deliveries etc.) are pushing the boundaries of existing legal and policy framework. Due to the lack of integration at the European level, governments deal with the pressure in completely different ways. Significant social tension arises because of the rigid regulations prohibiting new mobility services in many countries across Europe (clashes between taxi drivers and Uber drivers, taxi drivers damaging autonomous vehicles). Transport infrastructure development and new mobility services address the needs of the aging population. Due to the lack of coordination across the EU, however, these efforts are fragmented and the priorities are different in each country.
As a consequence of the Brexit, the European Union fundamentally transformed its decision making processes in order to bring the benefits of integration close to the citizens. Rigid and long decision making processes have been replaced by a flexible regulatory approach that can quickly and easily be adapted to the rapidly changing needs of business and technology. UBER and similar services have been legalised all over Europe thanks to new EU-wide legislation on shared transport services. The needs and interests of business and citizens are taken into account and facilitated through online participatory tools. This enabled the faster adoption of new technologies (e.g. autonomous vehicles) and business models for mobility systems. Despite increasing migration and security concerns, borders within the EU remain open and the remaining non-Schengen countries join the area of free movement. Cross-border traffic benefits from the interoperability of infrastructure, vehicles and services. Governments are quick to embrace new technologies and are able to manage and analyse their mobility data in balanced cooperation with data and traffic management companies.

A reindustrialisation takes place in Europe based on new technologies and innovation driven by increasing transportation costs, but also by a concern with quality and producing goods closer to the market. This will have a significant impact on freight flows facilitating more flows within the continent and reducing intercontinental freight movements.

People are becoming increasingly flexible in their work and private lives. The boundaries between private life and work disappear as people become always online and available. Travel time is used for multitasking (working) to add useful minutes to an otherwise very crowded daily schedule. Multitasking on autonomous vehicles promotes commuting from larger distances. Same-day delivery of goods ordered online becomes the norm. More leisure time is available that is used to travel to explore new places abroad. Individual needs and values are ever more important. Integrated mobility solutions aim to satisfy individual demand with the best possible combination of travel modes. Growing concerns about climate change and an increased focus on renewable energies and materials have brought new technologies and business models into the limelight. As digital literacy is a focus of the education system people are quick to adopt new technologies and services.

The aging population becomes an important target of business with specialised door-to-door mobility services. The elderly population embraces digital communication technologies and benefits from easier and more accessible local and long-distance travel.

Due to the increasing urbanisation, cities become more and more congested. Smart cities extend the efficiency and capacity of existing road and parking infrastructure and create additional travel demand. Cooperative Intelligent Transport Systems (C-ITS) based on big data analytics support mostly road transport by increasing road capacity and improving safety. Walking and cycling gains in modal share only in city centres. Elsewhere the increasing travel distances, faster pace of life and the availability of autonomous vehicles promotes the use of road transport vehicles running on non-fossil fuels.
A dramatic rise of energy prices, the scarcity of fossil fuels and raw materials and increasing awareness of the consequences of rising sea levels due to climate change have led to social and political unrest across Europe. Social and regional inequality have increased, which resulted in increased migration within and to the continent. Governments turn inwards to guarantee national security and supply of resources to their citizens. European policy focuses on enabling local initiatives rather than supranational standardisation. European and national policies turn towards reducing the dependence on fossil fuels and imported energy. Innovation is less supported due to scarce financial resources. Mobility planning is based on close local collaboration and co-creation with citizens to design places that are liveable.

People abandon the mass-produced, unsustainable products of large multinational corporations and turn to eco-friendly local cooperative production of food and energy, urban gardens and peer-to-peer services, which shorten supply chains and create self-sustaining communities. Due to increasing protectionism of national and regional governments multinational corporations increase their local production in Europe and adopt their mass-produced goods to local user needs.

A service sector based on sharing resources such as time, space and vehicles emerges supported by local social networks. “Slow, healthy and sustainable” are the new buzzwords. People appreciate spending more time with their friends and family within their neighbourhood. Energy efficient living and local initiatives to improve liveability at neighbourhoods are supported by the government. Local community members care for each other and people rediscover their local environment that can easily be explored on foot or bicycle.

A growing number of citizens are sceptical that technology development would make their lives better. While people take advantage of digital communication technologies and online services, the society is less technology driven. The adoption rate of new technology is slow. Peer-to-peer applications and online services developed by small local start-ups have replaced many of the services of big corporations. Mobility applications and sharing initiatives can easily be launched with lax legal and government control concerning user rights and privacy. Transport providers remain primarily national and local with little cross-border activities. Financial resources to build new transport infrastructure and maintain the existing ones are scarce. Therefore, there is more focus on the optimal use of existing roads and railways by retrofitting existing infrastructure.
After an era of lagging behind the USA and China in technology development and adoption, European and national policy have embraced the digital revolution and supports the development of new digital services and business models. Digitalisation is used to influence people’s behaviour. Due to the severe pressure of climate change governments want to fundamentally change the behaviour of their citizens to steer people to reduce carbon emissions and move them away from fossil fuels. Each citizen is connected to the Central Mobility Intelligence Server (CIMS) through their smartphones or smartwatches that monitors their movements and provides recommendations for routing and transport mode choice based on their location, previous behaviour and policy goals of the government. The smartphone or wearables apps constantly nag their users to move around in a sustainable way respecting the personal ‘carbon budget’ (the maximum amount of CO2 they can generate per month) that is assigned to each individual by the government. Constant monitoring of personal movements also improves safety and security.

Economic development is steered by the need to reduce carbon emissions and improve liveability in cities. Companies are required by government regulations to significantly reduce their environmental footprint. Sustainable and bio-production are prioritised. Large international corporations adapt to the new requirements and regionalise their production to meet sustainability goals. 3D printing becomes widespread boosting customised local production. Customers prefer to buy products with the smallest carbon impact.

Burn-out from fast-paced work have turned people towards healthier and active life. Work is arranged to require less travel, in neighbourhood flexi-offices, by supporting work from home and by distributing smaller offices in city districts. Long-distance travel is expensive due to the carbon taxation introduced all across Europe. People prefer to spend their holidays in the proximity to their homes. Cities embrace car-free neighbourhoods to improve liveability. Individual car ownership is discouraged by high taxes, traffic restrictions in cities and cheaper alternatives. Fossil fuel is prohibited in most urban areas and heavily taxed elsewhere. Travel demand is reduced through supporting densification i.e. living in densely built urban areas. Suburban living is costlier than urban living.

Smart cities focus on empowering citizens through digital technologies to participate in planning, monitoring (e.g. impact) and facilitating mobility (e.g. car sharing) rather than focusing on increasing the efficiency of the transport infrastructure. Sharing mobility resources (car, ride, parking, bike etc.) is widespread and it is enabled through smart apps. There is a high level of integration of mobility services steered by publicly managed transport partnerships (associations integrating all shared and public transport services). Everyone has the right to access to basic services guaranteed by the government. The walking and cycling environment is adapted to the needs of the elderly population, children and the disabled.