

Federated Innovation @MIND

Thematic Area Mobility & Logistics

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1) Strategic Domains

Description of the Thematic Area and outline of the Strategic Domains of focus for the Thematic Area are outlined, these represent the area of focus over which the TA will build their Agenda

Description of Thematic Area	Mobility refers generally to urban transportation and includes infrastructure such as roads, sidewalks, intersections, bridges, rail lines, waterways, airports and more. It also comprises passenger vehicles, trucks, subways and light rail, buses and shuttles, buses and air and water transport. On the other hand, logistics refers to the transportation of goods rather than people.
Strategic Domains	<ul style="list-style-type: none">• Sustainability and decarbonisation of products and passengers transport in a new normal urban environment

2) Trends and Scenarios – Business Environment – Industry Forces

Competitors (Incumbents)	<ul style="list-style-type: none"> • OEMs • Logistic operators • E-commerce platforms • MaaS -LaaS players • LPT operators • Fuel distributors
New Entrants	<ul style="list-style-type: none"> • New vehicles manufacturers from the SW and TLC sector • Drone manufacturers and operators • Self driving SW • Large commercial facilities (charging infrastructure) • Energy vendors and Traders
Stakeholders	<ul style="list-style-type: none"> • Central Government • Local transport authorities • Consumers - Prosumers • Distributed Power plants
Substitutes / complementors	<ul style="list-style-type: none"> • Smart working platforms • 3D printers
Supplier and other value chain actors	<ul style="list-style-type: none"> • TLC operators • DSOs and TSOs • Universities • Research labs • CROs • Technology companies • Market analysis/research providers/data provider (report or raw)



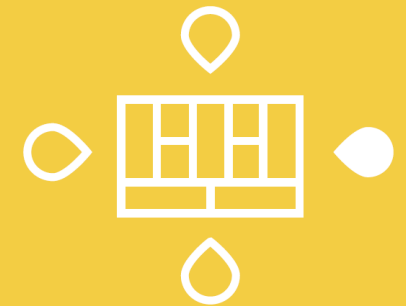
Industry Forces

Competitors (Incumbents)
 New entrants (Insurgents)
 Substitute Products & Services
 Stakeholders
 Suppliers & other Value Chain Actors

Stick these cards on the wall, to the left side of the Business Model Canvas poster.

2) Trends and Scenarios – Business Environment – Market Forces

Market issues	<ul style="list-style-type: none"> • Empowered mobility environment users • Reduction of congestions in the urban areas • Reduce the climate impact of mobility • Lack of replicability and scalability of smart mobility and logistic services
Market segments	<ul style="list-style-type: none"> • Home delivery • Local Public transport and MaaS integration • Urban logistics and e-commerce platforms • Electric demand flexibility services • Charging infrastructure
Needs and demands	<ul style="list-style-type: none"> • IoT, cloud computing, digital transformation, automation and smart factories • Solutions in fraud detection in telecom, improved cybersecurity, network optimization solutions, 5G enabling solutions • Improve air quality and mitigate noise pollution • Data driven urban planning
Switching costs	<ul style="list-style-type: none"> • Regulatory barriers on new vehicles adoption • Pandemic impact and new normal
Revenue Attractiveness	<ul style="list-style-type: none"> • The newest shared mobility services leverage data and technology, while others concentrate on the development of self-driving vehicles and electric vehicles. • Current urban mobility systems adapt poorly to changing demands and are weak in creating an integrated offering. • Commuters are willing to pay less for personal mobility service. For what concerns urban logistics the situation is even worse because customers are not available to pay for home delivery.



Market Forces

- Market Issues
- Market Segments
- Needs & Demands
- Switching Costs
- Revenue Attractiveness

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2) Trends and Scenarios – Business Environment - Key Trends

<p>Technology trends</p>	<ul style="list-style-type: none"> • Autonomous Vehicles • Artificial and Augmented Intelligence • Drone deliveries • Digital Twins • Blockchain • Data Standardization and Advanced Analytics • Sustainability Powered by Technology • Rise of the Internet of Things and big data • Mobility as a Service (MaaS) & Logistics as a Service (LaaS)
<p>Regulatory trends</p>	<ul style="list-style-type: none"> • Legislative models adapts to new transport solutions and businesses • Trend toward harmonization in legislative frameworks • Regulation compliance
<p>Socio-economic trends</p>	<ul style="list-style-type: none"> • Impact of climate change on transport • Move away from fossil fuels towards energy efficiency and renewable energies • New models challenging the individual vehicle ownership model • Restructuring working arrangements (smart working) • Stricter regulations for environmental protection • New players and new business models • Co-development and co-creation of new systems by users and economic actors • Transport safety
<p>Societal and cultural trends</p>	<ul style="list-style-type: none"> • Increasing life expectancy of the population • Move towards more active and healthy lifestyles • Acceleration and flexibility of liquid modern society



Key Trends

- Technology Trends
- Regulatory Trends
- Societal & Cultural Trends
- Socioeconomic Trends

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2) Trends and Scenarios – Business Environment – Macro Economic Forces

<p>Global market conditions</p>	<ul style="list-style-type: none"> • The economic projections continue to be highly dependent on how the COVID-19 pandemic unfolds. • Substantial support for economic activity is being provided by fiscal policy and the use of European funds available under the NGEU program • PNRR has set outstanding funds for investments in passengers and transportation system (€ 61,98 bn in Mobility and Transport related missions)
<p>Capital markets</p>	<ul style="list-style-type: none"> • Shared mobility is an industry that could double in size by 2030. • New mobility players have always seen the value of zero-emission vehicles and aim to cut emissions • New mobility players lead with a set of customer-centric solutions that ease the customer journey • Tech companies (i.e. Google) or ICT companies
<p>Economic infrastructure</p>	<ul style="list-style-type: none"> • PNIRE: national plan for the charging infrastructure • PNRR: Charging network funds



The diagram features a central white icon on a red background. The icon consists of a central square with a grid pattern, flanked by two circles on the left and right, and a teardrop shape below it. Above the central square is a location pin icon.

Macro Economic Forces

- Global Market Conditions
- Capital Markets
- Commodities and Other Resources
- Economic Infrastructure

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3) Strategy – Challenges, Opportunities and Strategic Implications

Challenges	Opportunities	Strategic implications
<ul style="list-style-type: none"> • Reaching urban mobility decarbonization within 2050 • Sustainability and circular economy • Providing new effective recharge infrastructure network for manned/unmanned passenger/good vehicles 	<ul style="list-style-type: none"> • Development of recharging infrastructures • Development of Freight EV • Development of new zero emission passenger vehicles, new design and configuration of vehicles 	<ul style="list-style-type: none"> • <i>How do we accelerate the decarbonization of good and people urban mobility and the improvement of air quality?</i> • <i>How we implement a scheme for eco-design and recycling materials from mobility industry?</i> • <i>How we make mobility industry production carbon neutral?</i>
<ul style="list-style-type: none"> • Providing home based and proximity services • Providing on demand services 	<ul style="list-style-type: none"> • Autonomous driving • Drones • AI and Machine learning 	<ul style="list-style-type: none"> • <i>How do we satisfy a rising demand of mobility optimizing the available resources and avoiding the utilization of private cars?</i> • <i>How we mitigate impact of large-scale home deliveries?</i>
<ul style="list-style-type: none"> • Providing seamless mobility services for passengers and goods 	<ul style="list-style-type: none"> • MaaS/LaaS • Sharing mobility and logistics platforms • Connected vehicles • City sensing 	<ul style="list-style-type: none"> • <i>How do we improve the sector digitalisation?</i> • <i>How do we integrate mobility and logistics networks with other urban networks?</i> • <i>How do we spread 5G and Wi fi connection?</i> • <i>Who is responsible for local sensors and ITS devices investments?</i>

4) Strategy – Draft Master Plan – Objectives, Key Results and Initiatives

Objectives	Initiatives	Expected results
<ul style="list-style-type: none"> • Emphasize on demand services - home based and proximity (eg. Delivery-by-drones dedicated areas in condominiums) lowering impact (eg. emissions, social divide, etc..) • Leverage on tech potential to enhance logistic operators capabilities with value added solutions (eg. Drones, AI, AR...) • New modular vehicles solutions for goods and people transport • Maximize the scalability of sustainable solutions • Implement a dedicated charging network for electric sharing mobility services and improve the user experience of the charging devices on public sole • Charging devices for drones and driverless vehicles • Optimize urban planning and electric local public transport by exploiting and leveraging on data generated by mobility system • Provide users with seamless travel experiences by merging different services on a unique platform • Maximize the utilization of urban infrastructure / logistic nodes by mapping unused urban spaces and leveraging on existing capabilities (eg private spaces as MIND district) 	<p style="text-align: center;">New logistic and mobility electric services – Test Bed -</p> <p>WHAT TO TEST?</p> <ol style="list-style-type: none"> 1. Testing BEV manned/unmanned solution (third parties prototypes) 2. Charging Infrastructure for BEV, drones, autonomous driving (third parties prototypes) 3. ITS systems and sensors (third parties prototypes) 4. MaaS and LaaS innovative services <p>Test facility - activate MIND as a pilot site</p> <ol style="list-style-type: none"> 1. MIND electric grid to be predisposed for charging infrastructure 2. MIND 5g network, dedicated band for vehicle-ITS and sensor communication 3. Dedicated area in business e residential buildings for drone/AV delivery 4. Adapted road signes and sensors 5. Dedicated servers 	<ol style="list-style-type: none"> 1. DESIGN PHASE (short term) Project idea for realization of test bed “New logistic and mobility electric services with unmanned vehicles in MIND area”. 2. New modular solutions for manned vehicles configuration and charging solution (eg. battery swap) 3. IMPLEMENTATION PHASE (medium/long term - from second half 2022 to 2023) Develop and test innovative and sustainable service solution(mobility/logistics) 4. Test bed implementation @ MIND: HW, SW architecture, KPI results, business case

THANK YOU

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