PRESENTATION

Dear all,

AMETIC, the representative organisation of the electronic and digital technology sector in Spain, and a recognised expert in digital transformation, engages on a continuous basis with key stakeholders at the national and European level.

Given the accelerated transformation of the mobility sector due to technological, environmental and societal developments, it is our role to design new mechanisms for collaborating that can bridge the public-private divide, cut-across spatial scales (local, national and global), and convene a range of sectoral actors (OEM, energy, transport, infrastructure, insurance, digital and telecom).

Thus, came the idea of creating a Think Tank in 2018 to gather leading actors across Europe to explore the present and the future of mobility in Europe, focusing on Autonomous, Connected Vehicles and Sustainable Mobility.

The uncertain and fast-paced nature of change in our world renders impossible to try to predict the future; nevertheless, we need more than ever to have future-oriented dialogues built on structured approaches that integrate complexity and uncertainty. This is the rationale for our choice to develop Scenarios, using the Oxford Scenario Planning Approach, with design, methodological support and facilitation by NormannPartners.

On our first iteration of the Think Tank, where 72 senior executives and experts from 55 organisations gathered, we focused on building scenarios for the future of Autonomous Vehicles in Europe.

Our main goal is to engage braver conversations, challenge common assumptions, better make sense of disruptive change, rethink strategy and uncover opportunities. We aim to foster dialogue and enhance participants’ resilience by bringing to the fore what if? questions.

Nevertheless we consider last year’s edition was solely the first step in a productive and very enriching journey towards the future of the mobility sector in Europe. Therefore, we would love to have you during the 2019 edition where we will explore implications and opportunities of the 2025 scenarios on autonomous vehicles in Europe for mobility, urban infrastructure and social impacts.

Pedro Mier
President of AMETIC

CONTENTS

Introduction
#VEHICLES7YFN - Journey so far
Methodology: Oxford Scenario Planning and Networked Approach
Main Uncertainties
2025 Scenarios on Autonomous Vehicles in Europe
Big is Beautiful
Slippery Slope
Citizen Mobility
Scenario Timelines
Scenario Assumptions
Key challenges
Implications of 2025 Scenarios on Autonomous Vehicles
Process of identification of business model opportunities and policy implications
Generic actor mapping of Urban Mobility Ecosystem in Europe
A current Urban Mobility Ecosystem: Case of Madrid
Major changes to local urban mobility ecosystems by 2025
Example of business opportunity
Next #VEHICLES7YFN Iteration: Barcelona Forum
Engaging with AMETIC and #VEHICLES7YFN
INTRODUCTION

The transport sector is on the cusp of a profound transformation due to the confluence of several technological trends including autonomous and electric vehicles, renewable and decentralised energy, connectivity and artificial intelligence. The interaction of these trends will shape not only what and how we drive, but the configuration of production systems, the design of urban environments, and choices around where people live and work.

Navigating these fast-evolving trends and uncertainties require new mechanisms for collaborating that can bridge the public-private divide, cut across spatial scales (local, national and global), and convene a range of sectoral actors (OEM, energy, transport, infrastructure, insurance, insurance, digital and telecom).

This is the purpose of #Vehicles7YFN is a Think Tank that explores the present and the future of mobility in Europe focusing on Autonomous, Connected Vehicles and Sustainable Mobility, gathering leading European actors in the mobility space. It is convened by AMETIC, the representative organization of the electronic and digital technology sector in Spain, and a recognised expert in digital transformation.

The 2018 iteration of the #Vehicles7YFN resulted in the 2025 Scenarios on Autonomous focused on Futures of Autonomous Vehicles in Europe generating a set of scenarios available for download at AMETIC website. The 2019 iteration of the #Vehicles7YFN Think Tank focuses on mobility, urban infrastructure and social implications of these scenarios, bringing state of the art insights from leading European research institutions, technology centers, associations, academia, standardization agencies, public and private bodies.

#Vehicles7YFN Think Tank has methodological support from NormannPartners, pioneering strategy advisors who enable clients to navigate uncertain futures, design ecosystem shaping strategies and deliver top line values.

To focus our thinking, sharpen our strategies and uncover opportunities and risks.

Three challenging yet plausible scenarios on the future of Autonomous Vehicles in Europe.

By gathering leading actors, bring expert knowledge to collaboratively design plausible scenarios and their implications.
What will be the social acceptance of Autonomous Vehicles?

How will the regulatory framework evolve?

How will climate change effects impact public perception and policy?

How will Autonomous Vehicles and Artificial Intelligence ready to deliver on their promises?

How will Artificial Intelligence perform to support Autonomous Vehicles Development?

Are Autonomous Vehicles and Artificial Intelligence ready to deliver on their promises?

How will the regulatory framework evolve?

How will climate change effects impact public perception and policy?

#VEHICLES7YFN - JOURNEY SO FAR

2018 ITERATION

01
Scope Definition & design of the Think Tank process

02
Mapping the landscape via Research & Interviews

03 Bilbao Forum
- Exploring drivers of change in the mobility space
- Uncovering opportunities by designing future mobility ecosystems in Europe
- Engaging with Spanish mobility, digital & start-up ecosystem

04 Stuttgart Forum
- Building 2025 Scenarios on Autonomous Vehicles & iterating with world-class experts
- Affirming scenario set & exploring implications, opportunities & risks
- Engaging with Stuttgart & German mobility, digital, & start-up ecosystem

05 2019 ITERATION
- Exploring mobility, urban infrastructure and social impact implications of the scenario set

06
- Research of the state of art in mobility trends

07 Bilbao Forum
- Mapping urban mobility ecosystems, relationships and co-created values
- Designing plausible future urban mobility ecosystems in each scenario (‘Big is Beautiful’, ‘Slippery Slope’ and ‘Citizen Mobility’) and across scenarios
- Identifying business opportunities and how Think Tank members can lead ecosystem reconfiguration

08 Barcelona Forum [Next step]
- Matchmaking with Barcelona innovation ecosystem
- Design of innovative value propositions & business models
**METHODOLOGY**

**OXFORD SCENARIO PLANNING AND NETWORKED STRATEGY APPROACHES**

The world is increasingly networked. The connections these networks foster are radically transforming business and society, making it richer as well as more turbulent, uncertain, novel and ambiguous. This "TUNA" environment poses significant opportunities and challenges.

Scenarios are a set of plausible and challenging stories and systems of the plausible future context one might inhabit.

Scenario planning enables organizations to better engage with this TUNA context to re-perceive changes in its context; to surface, question, and challenge its strategic assumptions; to better prepare for plausible and significant new contexts; and to inform the development of innovative value-creating systems.

Value-creating systems (VCS) is a modelling approach that identifies how strategy is manifested in the management of and attention given to the relationships an organisation has with other networked actors. It is based on the notion that the relationships organisations manage define their identity, and that value is co-created by multiple actors in value-creating systems, not in linear value chains.

In today’s service-based, solution-oriented, networked world, what matters are the interactions among networked parties that provide values of many types; these relationships are configured into a VCS where there will be an interplay of different stakeholders with different value offerings (e.g. commercial, financial, political, reputational, etc.). The strategic ability to orchestrate others into a designed VCS is in networked contexts as important as a focus on competition.
MAIN UNCERTAINTIES
FACING THE DEVELOPMENT OF AUTONOMOUS VEHICLES IN EUROPE BY 2025

Alignment of European economic, political and environmental interests fosters autonomous and connected vehicles, digital infrastructure development and steady development of AI and AV technology. Industrialization of solutions is favoured. OEMs and Tech incumbents race ahead, and a two-speed mobility system is reinforced across the continent.

Bitter trade disputes, policy patchworks and technology setbacks are the norm. Litigation emerges from the legal quagmire to grow both in unexpected areas and exponentially. Liability, corporate and personal, is a barrier for deployment of AV offers. China switches to the accelerated deployment of 'New Energy Vehicles' and the rest of the world follows in its wake. "Mobility as a service" offerings flourish.

Soft, shared and multi-modal mobility solutions are favoured. Autonomous Vehicles, where permitted, are integrated into Mobility as a Service offerings. Europe flexes its global regulatory super-power muscles and takes the lead in setting open and secure mobility data standards. A thriving digital ecosystem for connected mobility emerges and several European start-ups successfully scale-up.
Alignment of European economic, political and environmental interests fosters autonomous and connected vehicles, digital infrastructure development and steady development of AI and AV technology. Industrialization of solutions is favoured. OEMs and Tech incumbents race ahead, and a two-speed mobility system is reinforced across the continent.

SCENARIO 1: BIG IS BEAUTIFUL

AARNI’S STORY

Tampere, Finland, 25 February 2025

09.15 hrs. Aarni looks at his digital dashboard supervising a fleet of 215 autonomous trucks across the country. Only 22 were currently under human control. The remainder were happily making their way across the Finnish highway system. A red-light flashes under A543, an articulated truck with two containers heading north towards Kuopio. Aarni checks the video feed. The truck is part of a 5-vehicle convoy led by Matti. False alarm.

Aarni relaxes, smiles and sips his coffee. It had been a long journey for his logistics company since the RoboBusLine was introduced in Helsinki back in 2017 as part of the EU Horizon 2020 research and innovation program. Mini buses taking people backwards and forwards to the zoo. Who was watching which animal Aarni wondered with a wry smile? In any event, the constant tinkering of the 2010’s with innovation and mini-pilots finally made way for some more serious efforts to scale things up.

Back then, Aarni was on the verge of taking over his father’s modest logistics company with just over 100 vehicles. With his IT background, he realized that there was only one possible future for trucking and that was autonomous. The power train might be ICE, electric or hydrogen but the days of one driver per vehicle were numbered. So Aarni started to invest in distance monitoring and invited his staff to familiarize themselves with remote control and automated logistics systems. He also started to look around for an opportunity to participate in any efforts to make the Finnish fleet autonomous.

Aarni did so out of a conviction that the company his father had built up would either make the transition or it would go out of business. The economics were too obvious. 50% of the cost of a truck was the driver and human drivers would always use more fuel. And then there were the safety aspects – autonomous monitoring systems were always going to be much safer than a human driver, it was only a matter of time before the built-in learning capabilities of AI overtook even the most careful of drivers in terms of road safety.

As a result, when the Finnish government tendered for a large-scale trucking operation to go autonomous, Aarni was quick to react and delighted to win. The EU-backed AV/AI initiative meant that every country in Europe, even the UK, would have their own major AV/AI operation. Some countries choose taxi fleets in inner cities, other countries went for suburban transportation, but Finland went for logistics and that suited Aarni perfectly. The Finnish government was also happy with their choice as AV tax schemes in other European cities were stop and go. AV in dedicated, closed off city center areas were generally fine, but as soon as mixed mode with busy traffic was introduced, problems arose.

With the help of local IT expertise and the truck manufacturer, Aarni had quickly expanded his fleet and made it as autonomous as possible. For longer journeys his company used convoys, usually one driver for five trucks. For shorter journeys, single autonomous vehicles were allowed to travel around the country with a remote operator – at least during off-peak hours such as during the night.

The government, partially driven by safety aspects and partially driven by unions concerned about future employment opportunities, was still arguing how many vehicles a remote operator could supervise effectively at once. Aarni personally reckoned that it was about 10-15 in a city area but his company was restricted to 7 for now which meant three people working over a 24hr day. Still worth it though and the number of times they had to intervene was going down every month.

10.30 hrs. Red light. A wild moose had wandered into Leena’s convoy near Kajaani. Back to work. Better to be at the table rather than on it.
After the May 2019 elections, the European Union enacted a series of ambitious policies and regulations for the implementation, on an industrial scale, of an electrified economy based on renewable energy with sustainable heating, cooling, housing and mobility. As a direct consequence, the development of Connected and Autonomous Vehicles (AV) focusing on safety, data protection and data share-ability is accelerated. Investment lines in Artificial Intelligence (AI), cybersecurity and the resolution of the tension between 5G and ITS-G5 favour the industrialisation of solutions by incumbents.

**SCENARIO 1: BIG IS BEAUTIFUL**

**HOW THIS WORLD COMES ABOUT...**

**UP AND RUNNING**

**AMBITIOUS EUROPEAN POLICIES**

**FOCUS IN INDUSTRIALISATION OF SOLUTIONS**

**AV EXPERIMENTS**

**PUBLIC / PRIVATE INVESTMENT: AI / CYBERSECURITY / 5G + ITS-G5**

**INFRASTRUCTURE INVESTMENT**

These ambitious policies rely on an alignment of interests emerges between EU politicians, environmentalists, the energy sector, the construction industry, the mobility industry, regulators and city authorities. The policies are designed to stimulate economic growth in sustainable technologies and systems, partially in response to environmental change, partially in response to city liveability challenges and partially to ensure global green leadership in European industry. Each European country, including the UK, selects a major section of its mobility infrastructure for implementation of an AV/AI solution with a heavy, but not exclusive, emphasis on electrification. As a result, Metropolitan areas in Europe compete to be pioneers in the emergence of AV services (e.g. robot-taxis, logistics), freeing space for experiments with level 5 AV. AV adoption in delimited areas (e.g. airports, warehouses) provides a compelling case for cost (and jobs) reduction.

A two speed-mobility system is reinforced with dense urban areas seeing a competition of numerous Mobility as a Service (MaaS) offerings. Rural and peripheral areas lag behind with public transportation systems lacking adequate funding despite 5G satellite coverage. Large logistic firms, OEMs and Tech incumbents race ahead as the pioneering European mobility start-ups of the 2010s struggle to scale-up.

Although stringent regulations on pollution and emissions favour fleet electrification, ICE retains a substantial share of the market much to the frustration of EU politicians and environmentalists. In 2025, most new vehicles integrate level 3 and 4 automation.
SCENARIO 2: SLIPPERY SLOPE

CLARA’S STORY

“Señora, you are a trained ‘Abogada’ registered with the bar association. You surely understand that being reasonable is not an option when you want to change things. You need to be unreasonable.” Clara Torres flinched slightly with the still vivid memory of Javier Vega Aguirre, married and father of two children aged 5 and 7. He had walked into her recently formed legal practice two days ago to explain how his youngest child had been killed by an autonomous vehicle on the streets of Barcelona.

What he wanted was not compensation or admission of liability. He already had that and had duly received two million euros in damages from the operator and vehicle manufacturer. What he wanted now was to use a significant proportion of that money to force the City of Barcelona to ban outright any autonomous vehicles whatsoever. And he wanted Clara to lead the case.

The accident was truly tragic. His daughter had been playing on the pavement near their home when she stumbled and fell towards the road. The driver of the oncoming car saw what happened and swerved to narrowly avoid Maria by driving onto the pavement, crashing into the wall. She panicked, got up and rushed away from the crash across the road and straight into an oncoming autonomous vehicle coming in the opposite direction. She was killed immediately. Javier had won compensation since the onboard video of the autonomous vehicle clearly showed that the car did not slow down until Maria got to work there and there was the added bonus that they would have an excellent understanding of data breaches and the GDPR.

So, standing should be okay, but what were the main arguments? After all, the manufacturer and operator could reasonably argue that they had fixed the software problems? Furthermore, the City of Barcelona had invested substantially to develop an efficient urban mobility model and it was bound to come up with all sorts of statistics and expert opinions showing that AVs were safer than human drivers. And then it hit her, human drivers can be held accountable for their actions – machines cannot. If a human killed a child in a similar accident, the law could choose between accidental death, manslaughter and murder. That was not an option for an AV. Neither the vehicle, its programmers or its corporate owners could be held to account in the same way as a human being. Clara scribbled on the flip chart. Does the City of Barcelona have the right to decriminalise killing? Human rights versus commercial rights? Evasion of personal accountability is a slippery slope. Legal analogy to weapons not controlled by humans? Who in the City of Barcelona had authorized companies to program ethical choices that could kill or injure? To what extent had the City of Barcelona done due diligence on the AV software? Do they have the skills, competence or authority to do due diligence and to make such value judgements? Should the case be referred to the European Court of Human Rights?

Clara stood back and looked at her work. Yes, there was a case there. Create enough doubt about the probable cause? Should the case be referred to the European Court of Human Rights?

But now Clara had to take the matter further, namely to the City of Barcelona. And that was a very different case. She stood up in her chart and picked up a pen. It was her favourite way of thinking and organising her thoughts.

First, she had to think about who had standing to bring such a case. Javier on his own would probably not be enough. The right to initiate proceedings on behalf of collective interests usually required either the majority of affected people or the support of a legal entity such as a consumer or user association. Getting the majority of parents in Barcelona to sign up was a non-starter – better to approach FACUA, the consumer rights group. Clara knew some former classmates who had gone to work there and there was the added bonus that they would have an excellent understanding of data breaches and the GDPR.

So, standing should be okay, but what were the main arguments? After all, the manufacturer and operator could reasonably argue that they had fixed the software problems? Furthermore, the City of Barcelona had invested substantially to develop an efficient urban mobility model and it was bound to come up with all sorts of statistics and expert opinions showing that AVs were safer than human drivers. And then it hit her, human drivers can be held accountable for their actions – machines cannot. If a human killed a child in a similar accident, the law could choose between accidental death, manslaughter and murder. That was not an option for an AV. Neither the vehicle, its programmers or its corporate owners could be held to account in the same way as a human being. Clara scribbled on the flip chart. Does the City of Barcelona have the right to decriminalise killing? Human rights versus commercial rights? Evasion of personal accountability is a slippery slope. Legal analogy to weapons not controlled by humans? Who in the City of Barcelona had authorized companies to program ethical choices that could kill or injure? To what extent had the City of Barcelona done due diligence on the AV software? Do they have the skills, competence or authority to do due diligence and to make such value judgements? Should the case be referred to the European Court of Human Rights?

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The simmering tension in international trade relations towards the end of the 2010’s has expanded into an all-out round of bitter international trade disputes. Trade-related environmental protectionism is widespread as climate change is exploited as a handy, sometimes perverse, excuse to erect trade barriers. These disputes frequently involve major actors in mobility, in particular those associated with the industrial heart of Europe. The resultant economic malaise coupled with continued migrant pressures has enabled populist governments to get traction in Europe. Consequently, the definition of EU-wide trade and regulatory frameworks has become ever-more contested and a patchwork of policies has emerged across countries generating an uneven playing field that only large companies with their sophisticated legal services can navigate. Schadenfreude trumps European solidarity as Germany struggles with a weakened industrial base.

Under international trade and populist pressures, the EU takes a protectionist stance and infrastructure investment lags behind. In the West more generally, regulation and litigation grow exponentially, and liability is a barrier for innovation and any deployment of levels 4 and 5 AV offers. But not in China. The Chinese State accelerates deployment of ‘New Energy Vehicles’ (EV, hybrid and hydrogen) and favours AI & AV development by pushing Chinese standards on data sharing, batteries and 5G. Extensive European M&A activity by Chinese companies empowers them to establish de facto industry standards (EU standard setting having frozen to a standstill in these areas) and to deploy fully tested technology against European and American incumbents. More recently, cracks in Chinese hegemony have started to appear as they too begin to struggle with the impact of an aging population and the human cost of decades of environmental destruction in the name of economic progress.

US, Chinese and Korean battery prices reduce substantially favouring fleet electrification and ‘Mobility as a Service’ (MaaS) offerings flourish. Some European battery manufacturers emerge onto the scene on the back of government stimulus at the national level. In Europe, pollution consequences in dense urban areas become more acute and metropolitan areas put further, stringent restrictions on internal combustion engines. Individual car ownership continues to decline. OEMs central focus is on hybrid and EV propulsion to support MaaS.

Artificial Intelligence and Autonomous Vehicles struggle to perform in complex, often contradictory regulatory environments. Vandalism, cyber breaches as well as accidents with casualties involving AV are singled out in the press and social media. These are then picked up by populist politicians, activist lawyers, trades unions, the media and regulators. Chinese investment and economic power leads to a situation where, in 2025, most new vehicles integrate level 3 automation but aggressive, and highly fragmented, litigation holds back any significant deployment in Europe of AV level 4 or 5 technology. The few pilots that did get approval for mixed-mode traffic operations have had a series of catastrophic and tragic, setbacks further fuelling litigation, regulation and political reluctance.
SCENARIO 3: 
CITIZEN MOBILITY 
CRISTINA’S STORY

Bilbao, 18 June 2025

Cristina is heading back from her 3 days stay in Bilbao and she has a couple hours to put together the final lines of her article to be published in the Financial Times special report on Mobility in Europe.

Bilbao and the Bizkaia region have been lauded for the past decades for their transformation from an industrial city into a cultural tourism destination, in what came to be known as the “Guggenheim effect.” Whereas most people believe the opening of the Guggenheim museum in 1997 is the cause of this transformation, it is less known that this was the result of a concerted effort by several stakeholders including policy makers, private actors and civil society to revitalise the region and turn it into a thriving hub of urban and economic innovation, particularly in manufacturing (autoparts, oil refinery and steel tubes for oil extraction) and the electrical energy sector.

Almost 30 years later, Bilbao and the Bizkaia are starting to be recognised by a different transformation: its pioneer public policy in supporting a thriving digital ecosystem for connected, soft, shared and multi-modal mobility.

Urban planners and authorities were one step ahead in creating an enticing policy environment to favour the development of integrated door-to-door mobility solutions. In concertation with public transport, ride hailing, car pooling and sharing, infrastructure and soft mobility providers, a one-stop mobile platform enabled users to obtain the most adequate solution to their mobility needs. It agreed with these actors an open source data policy where the enormous amount of data brought by the proliferation of IoT sensors in the region was aggregated and made publicly available in an anonymized real-time database to favour the emergence of new mobility solutions. The European GDPR and the focus in cybersecurity ignited by the 2018 Cybersecurity Act and translated in investments in the EU budget 2021-2027 had forced these operators to adopt stringent protocols to protect privacy.

The Bizkaia region freed up space for autonomous vehicle experimentations that receive, for the time being, a positive acceptance from citizens given their proven role in reducing fatalities. It also committed itself to stringent CO2 and NOx emission targets as pollution litigation grows and city liveability is a key criterion to attract and retain talents to nurture its vibrant start-up ecosystem. The region is thus able to track in real-time emissions and, despite resistance, it decided last year that some parts of the Bilbao Centre would be restricted to low-emissions certified vehicles. It is also fair to say that the development of the electric charging infrastructure network has been faster than most people anticipated.

Furthermore, recent elections put mobility centre stage alongside economic and unemployment considerations. Citizens play a bigger and bigger role in the energy transition, both as consumers and as voters. Young citizens, in particular, are strongly apt to translate a social media storm into real action. To a substantial number of this cohort, owning a mobility asset is unthinkable; mobility is a service, private or shared, but a service and this makes perfect sense with developments in other areas where services are more and more on offer over ownership. It is true that this approach answers the challenge of continually rising real estate prices that put a drain on purchase power. It remains, nevertheless, a challenge to provide mobility services to those pushed out into peri-urban areas.

Bilbao is not alone in driving this mobility transformation. It is part of a group of innovatives agglomerations across Europe including Copenhagen, Frankfurt, Barcelona, Stuttgart, London, Paris and several other members of Eurocities taking substantial action to fulfil climate change commitments. This group has been instrumental in lobbying the European Union to act on the opportunity to develop standards for open and secure mobility data.

It is said that ‘lighting never strikes the same place twice’, but Bilbao and the Bizkaia region seem on track to contradict this popular myth.
Chinese-US relations remain tense with both investing heavily through their military infrastructures in order to claim technology hegemony in AI, EV and energy storage. The EU, ASEAN block, India and Africa all adopt a pragmatic stance doing their level best to avoid bitter trade disputes with either super power.

The European priority is on encouraging innovation and economic growth against a backdrop of an aging population and limited migration. Europe flexes its global regulatory super-power muscles and takes the lead in setting open and secure mobility data standards. EU Regional Development Funds are subsequently leveraged to encourage cities and local regions to align local regulatory frameworks with EU-wide data protection, cyber-security and mobility data regulations. Other countries as well as some US states follow suit, starting with the UK and Japan, ensuring a de facto export of EU legislation, and standards, across much of the world.

This regulatory framework encourages private and public investment in Mobility as a Service (MaaS). The initial focus is on start-ups with, once again, less attention being paid to the industrialisation of mobility solutions by major incumbents. Level 5 AV is initially seriously limited to ‘dedicated urban areas’ but this does, at least, free up the necessary investment to integrate AV into emerging MaaS offerings. To the surprise of many observers and entrenched interests, a thriving digital ecosystem for connected mobility quickly emerges and several European start-ups successfully scale-up.

Their innovative MaaS offerings were warmly embraced both by consumers finally getting a boost in disposable income and a rather peculiar alignment of interests between groups who normally worked against each other. EU regulators were pushed along by the 2019 Parliament and Commission to enable, not strangle, innovation and economic growth. City authorities and civil society simply wanted cleaner and more affordable mobility. MaaS offered the promise of both. Politically influential environmentalists were, for their part, reasonably supportive of MaaS on the grounds that the basic economics behind such solutions encouraged 24/7 vehicle use – a type of use that suited perfectly electric power trains. Finally, MaaS offered a credible alternative to the carbon pricing schemes that were becoming commonplace.

Economic reality is dealing a death blow to individual ownership of vehicles in built-up urban areas. City authorities, encouraged by the windfall and their voters, direct their urban planners to follow suit and to irreversibly exploit the freed-up space. Renewable energy production grows substantially, and fleet electrification explodes.

In 2020, most new vehicles integrate level 3 and 4 automation. More importantly, at least for supporters of Level 5 automation, the societal and economic conditions for growth of future AV offerings are positive. Cities, emboldened by the success of MaaS and backed by popular support, are increasingly showing willingness to restrict city centre access to autonomous, renewable, mobility services (ARMS).

SCENARIO 3: CITIZEN MOBILITY HOW THIS WORLD COMES ABOUT LISTENING TO VOTERS & CONSUMERS
### 2019 TO 2025: SCENARIO TIMELINES

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<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>2019</td>
<td>EU Scale Up Policy</td>
<td>Implementation of AV in some cities</td>
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<td>2019</td>
<td>EU Blockchain</td>
<td>First MaaS offerings in urban areas</td>
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<td>2019</td>
<td>Green Mixed Candidates Majority in EU Elections</td>
<td>Purpose driven strategies mainstream</td>
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<td>Car Ownership = 30% in large cities</td>
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<td>2021</td>
<td>Problems with Battery Recycling</td>
<td>Popular Demonstrations Against AVs</td>
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<td>2021</td>
<td>EU Wide Smart City Platform Launched</td>
<td>5G Battles Gather Pace</td>
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<td>2021</td>
<td>EU Regulation on Open &amp; Secure Mobility Data</td>
<td>Purpose Driven Strategies Mainstream</td>
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<tr>
<td>2021</td>
<td>New Economic Crisis in EU + Protectionism</td>
<td>Slippery Slope</td>
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**MOBILITY, URBAN INFRASTRUCTURE AND SOCIAL IMPACT IMPLICATIONS OF THE 2025 SCENARIOS ON AUTONOMOUS VEHICLES IN EUROPE**

**LEGAL / REGULATORY**
- C-ITS
- Pre-EU Majority Elected in EU Parliament
- European Passport Introduced
- Purpose Driven Strategies Mainstream
- Green Mixed Candidates Majority in EU Elections

**TECHNOLOGICAL**
- 5G Deployment
- AV Test Deployment in Road Infrastructure
- SAE Level 4 + 5G Deployment
- Unified Mobility Data
- Enhanced Security of Data Transmission + Wireless Charging Infrastructure

**SOCIAL / SOCIETAL**
- European Plate Number
- Pre-EU Majority Elected in EU Parliament
- Purpose Driven Strategies Mainstream
- Green Mixed Candidates Majority in EU Elections

**ECONOMIC**
- First MaaS offerings in urban areas
- EU Wide Smart City Platform Launched
- EU Regulation on Open & Secure Mobility Data
- New Insurance Models

**ENVIRONMENTAL**
- Dire Climate Change Consequences in EU
- EU Wide Smart City Platform Launched
- Problems with Battery Recycling

**BIG IS BEAUTIFUL**

**SLIPPERY SLOPE**

**CITIZEN MOBILITY**
KEY ASSUMPTIONS

**COMPARISON**

**BIG IS BEAUTIFUL**

- SUCCESSFUL TO THE SUCCESSFUL STORY
- MODERATE
- EUROPE-WIDE ON AV
- SMOOTH GOING
- INDUSTRIALISATION OF SOLUTIONS
- ACCELERATED PROGRESS
- WIDELY SHARED
- SUBSTANTIAL IN AV

**SLIPPERY SLOPE**

- SETBACKS AND DIVERGENCE STORY
- INTENSE
- PATCHWORK OF NATIONAL AND LOCAL POLICIES
- RISKS EVERYWHERE
- MOBILITY POLICY AT NATIONAL, REGIONAL LEVEL
- MAJOR SETBACKS
- INDIVIDUALISTIC
- MULTIPLE ROADBLOCKS

**CITIZEN MOBILITY**

- LET A THOUSAND FLOWERS BLOOM STORY
- INTENSE
- EUROPE-WIDE ON OPEN AND SECURE MOBILITY DATA
- SMOOTH GOING BUT MAX5 HAS PRIORITY
- OPEN - EMERGENCE VIA START-UPS ECOSYSTEMS
- STEADY PROGRESS
- SHARED INSIDE CITY CONURBATIONS
- STRONG GROWTH THROUGH MAX5 FLEETS

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**LOGIC** - 'SUCCESSFUL TO THE SUCCESSFUL STORY'"
IMPLICATIONS OF 2025 SCENARIOS ON AUTONOMOUS VEHICLES

MOBILITY, URBAN INFRASTRUCTURE, SOCIAL VALUES, 5G & POLICY MAKING

• Responsible consumption
• Pollution-free – healthy cities, sustainability
• Transparency

• Individualism, tribalism, protectionism, anti-EU sentiment
• Power struggle: transnational policy vs. local well.
• Interrelated technology, institutions, litigation on the rise

• Trust, transparency, safety
• Environmental / caring values
• Change from property to usage
• Affordability, low cost services

5G networks enable safety services and contextual information, value added mobility services (e.g. remote driving, sensor sharing, or platooning) and, in specific use cases, support operation of autonomous vehicles (e.g. heavy machinery).

Multiple standards (patchwork); 5G deployed only in cities, enabling safety services and contextual information. Experiments with 5G for value added mobility services

5G networks enable safety services and contextual information; and value-added mobility services to improve user experience in public transportation.

• Integration of micro-mobility (scooters, bicycles, accessibility...)
• Bigger relevance of residential and distributed energy resources (DER) as source of energy for EV/AV
• Technology enabled urban infrastructure
• Utopistic computing development based on artificial and quantum computing (latency & location)

• Infrastructures must be able to cope with some AV pilots and conventional vehicles
• Electric recharging infrastructures: varied approaches across countries
• City planning ‘reinvented’

• Connected infrastructure: sensors + data + analytics
• Development of flexibility and adaptability
• Public-private interaction / collaboration

• Public, social associations for pushing policy alignment
• Speed up in standardisation

• Enforcement of law and regulation
• Standardisation
• Lack of common European regulations / multi-sector regulations

• Public-private interaction / collaboration
• Harmonised European Regulation
• Streamlined EU support to local authorities
• Technical knowledge
• Integrates users demand

DOMINANT SOCIAL VALUES

5G NETWORKS IMPACT ON MOBILITY

CRITICAL TRANSFORMATIONS IN URBAN INFRASTRUCTURE

CRITICAL ISSUES FOR POLICYMAKERS

01 MAPPING

02 FOCUS

03 DESIGN

04 IDENTIFY

05 DELIVER

We first mapped the current urban mobility ecosystem in which Think Tank participants find themselves, specifying inter-actors and relationships (political, knowledge, investments, service/commercial, data, regulation), with emphasis on the role of emergent technologies, digital actors and start-ups (the generic actor mapping is presented in the following page).

Think Tank members then designed plausible future urban mobility ecosystems in Madrid and Bilbao, exploring how value-creating systems might develop in each scenario (‘Big is Beautiful’, ‘Slippery Slope’ and ‘Citizen Mobility’) and across scenarios. A sample of major changes for both ecosystems is presented, the full list being available to Think Tank members.

This led the Think Tank members to identify networked business opportunities, as viewed through collaborative strategy lenses, and how they could lead ecosystem reconfiguration. The unique mix of members from the public sector (at different levels), private sector (large, middle, small, start-up), research institutions and civil society enabled the identification of 20+ business model opportunities.

We focused on the urban mobility ecosystem of two cities representing large size and mid-size European cities: Madrid and Bilbao (an example from Madrid is showcased).

We finished by deriving policy implications for AMETIC’s interaction with key stakeholders at the Spanish and European level.
This is a non-exhaustive ecosystem mapping presenting some actors and relationships that Think Tank members decided to reflect upon.

Organisation and company names serve illustrative purposes only.

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Organisation and company names serve illustrative purposes only.

This is a non-exhaustive ecosystem mapping presenting some actors and relationships that Think Tank members decided to reflect upon.

Organisation and company names serve illustrative purposes only.
### Major Changes to Local Urban Mobility Ecosystems by 2025

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
<th>Actors</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIG IS BEAUTIFUL</strong></td>
<td>Platform that includes all mobility related agents within a city. The platform would include logistics companies, car sharing companies, garbage collection companies, etc. The platform would gather data and would help take dynamic decisions in order to improve mobility in the city. It would also give all the agents optimal routes. It would benefit urban traffic management, as well as all the implied agents and also citizens.</td>
<td>All mobility actors; City council (urban traffic manager); ICT companies to develop the platform; IoT sensors.</td>
<td>All delivery actors would be geolocated and identified. It would help reduce bad practices; Necessary regulatory changes.</td>
</tr>
</tbody>
</table>

#### Madrid
- Massive local data handling
- Smart energy management: aggregators, intelligent connectivity, energy storage
- Car manufacturers become MaaS providers
- City authorities become more powerful
- Chinese EV OEMs gain market share
- Consolidation of car sharing services providers
- Collaborative Administration (e.g. PPPPartnerships)
- From energy to electricity
- From different services to MaaS
- From ownership to sharing
- Mobility as a service: a) multimodal (new services) b) new platform handled by public authorities
- Mobility as a Service (public + private) + last mile
- Access restrictions
- Full connectivity / 5G
- Environmental Consciousness: a) policy / restriction b) electrification

#### Bilbao
- Integral UGD (Urban Goods Distribution) logistics
- Integral Management Systems for Mobility
- Dynamic use of public / private space
- Integrated management of transport / mobility / data
- Mobility as a Service (public + private) + last mile
- Access restrictions
- Full connectivity / 5G
AMETIC’s Think Tank #Vehicles7YN is a ‘learning journey’ where the journey is as important as reaching the destination. It provides a ‘safe space’ within which differences of views, opinions and framings can be explored productively.

The Think Tank design explicitly confronts co-creators with challenges and with disruption. It leverages AMETIC’s unique role as a neutral convener bridging the digital sector with multiple stakeholders (companies, regulators, cities/regions/national governments, citizens, civil-society entities, and so on).

The Barcelona forum will be composed of two stages. In the first, Think Tank members will interact with the world-class Barcelona digital and start-up ecosystem to learn and explore business opportunities. In the second stage, building on the value-creating systems, implications, opportunities and threats identified in the Bilbao Forum in different scenarios and across scenarios, Think Tank members will design innovative value propositions and business models they could co-create using the Networked Strategy Approach.

FEEDBACK FROM THINK TANK MEMBERS

- Congratulations, very well done; great group of people.
- Thanks to AMETIC for process to generate innovative and disruptive ideas and purpose.
- Escalate this initiative to European level.
- Keep on promoting interaction and cooperation among different stakeholders.

Engaging with AMETIC initiatives and the #Vehicles7YN think-tank:
AMETIC is the convener of the #Vehicles7YN think-tank with design, methodological support and facilitation by www.normanpartners.com. The views expressed in this publication have been based on workshops, interviews, and research and do not necessarily reflect those of AMETIC. References mentioned in this report are available upon request.

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