CLEPA
European Association of Automotive Suppliers

NET ZERO INDUSTRY ACT AND STATE AID REFORM

A GREEN AND SMART AUTOMOTIVE INDUSTRIAL PLAN FOR A COMPETITIVE AND PROSPEROUS EUROPE

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Introduction

The EU's Green Deal, specifically the 'Fit for 55' regulatory package, is set to radically transform industries across the region. The EU automotive supply industry must build on its strong track record of innovation to maintain its competitiveness and avoid being hindered by regulatory targets. Challenges such as high energy costs and volatile material prices are further compounded by the rollout of carbon pricing.

To remain competitive, the EU must respond to the US Inflation Reduction Act's (IRA) tax credit programme for green technologies, which makes the US an attractive destination for investment. While the European Commission is working to limit discriminatory treatment of EU goods, the EU must also accelerate its innovation and production cycle to ensure new technologies can be scaled for mass production. To achieve this, an accessible, predictable and substantial funding mechanism is necessary.

Automotive suppliers are among the largest private investors in R&D and play a critical role in five of the six identified critical value chains that secure the EU's international competitiveness, as identified in 2021[1]. Despite attracting €54 billion in foreign direct investment (FDI) over the past five years[2] and maintaining an average annual export surplus of more than €20 billion[3], the trade balance is deteriorating, and FDI is declining. A strong EU policy response is necessary to support the industry's competitiveness and maintain its role as a bridgehead to a green and smart future for the EU's industrial base.

The European Commission's 2021 industrial strategy revisions and subsequent proposals for a Net Zero Industry Act (NZIA) and the Temporary Crisis and Transition Framework serve as the foundation for a comprehensive industrial strategic policy response. This document outlines concrete objectives for a holistic industrial strategy, including state aid reform, reducing the regulatory burden, and identifying crucial enabling conditions. Additionally, it highlights the importance of the EU automotive supply industry in strengthening the EU's resilience in five of the six critical ecosystems and the need to address concerns regarding the EU's competitiveness as a destination for automotive investment.

[1] European Industrial Strategy, 2021
[2] FDI markets
[3] S&P IHS Global Trade Atlas

Executive summary

Industrial strategy for a net zero industry

The Net Zero Industry Act (NZIA) aims to strengthen the resilience and competitiveness of net zero technology manufacturing in the EU. While the NZIA and Temporary Crisis and Transition Framework allow for more state aid for eight critical technologies and expedited permitting procedures, these measures may only offer a temporary solution. They fall short of the industry's needs to maintain competitiveness and achieve the ambitious 55% CO2 emission reduction target by 2035.

To truly achieve success, the NZIA proposal must be amended and supported by a structural overhaul of the state aid framework and funding landscape. While we welcome the fact that the NZIA recognises the importance of components and materials for the delivery of net zero technologies, the NZIA proposal has three key deficiencies: its focus on a predefined set of technologies, lack of attention to the importance of digitisation, and the absence of a funding instrument with predictable eligibility criteria. For Europe to secure its long-term competitiveness, policy instruments must not only support climate neutrality but also efforts to digitise the European economy.

Holistic industrial policy

The current funding opportunities suffer from several shortcomings, such as lack of coherence, limited scope and unclear eligibility criteria. This limits their contribution to the roll-out of innovations, as companies need predictable targets and transparent application and selection procedures to invest in the scaling-up of breakthrough technologies. Therefore, it is essential for the Commission to develop a comprehensive five-to-ten-year funding framework that aligns with the green and digital transition objectives of the 14 industrial ecosystems and six critical value chains identified in 2021. The funding priorities should include ambitious goals, such a developing circular cars, achieving climate-neutral mobility, and creating significant use cases for level 4/5 autonomous mobility.

To achieve these goals, the Commission should also adopt a strategic approach to public procurement and standardise recycling and LCA methodologies. Such a holistic approach requires a dedicated governance structure that engages industry stakeholders and ensures a coherent implementation.

CLEPA proposes that the NZIA be amended and integrated into a holistic industrial strategy based on the following principles:

- EU policy measures should be predictable, match international competition, and have a long-term horizon to compete internationally and avoid redirecting investments.
- A holistic long-term industrial strategy should fast track permitting procedures, reinforce R&I support, and provide financial support for upscaling green and smart mobility and manufacturing.
- Access to skilled labour and support for reskilling workers are crucial to transform existing businesses, their workforce and production facilities.

- Reducing the regulatory burden, prioritising enabling conditions, and adopting a technology-open approach can reinforce policy measures.
- Strengthening the Single Market will improve integration with global and resilient supply chains, as well as access to markets.

State aid reform

An EU-funded program, potentially using unused funds from the NextGen EU package or ESF funds, should be the centrepiece of the EU's long-term industrial strategy. The program should allow for co-financing by national or regional public authorities.

Support should be provided in the form of tax credits, awarded by Member States but co-financed and coordinated at the European level, with a five-to-ten-year time horizon tied to ambitious conditions and awarded based on a predictable and transparent procedure to help scale the manufacturing of net zero technological innovations and circular, net zero and smart production technologies. To increase the flexibility of Member States to support R&D, infrastructure, and regional development projects, General Block Exemption Regulation (GBER) notification thresholds should be increased, while safeguarding the single market-level playing field.

The regulation on CO2 emission performance standards[4] rightfully acknowledged the need to support the mobility ecosystem with funding instruments, including the Innovation Fund and Recovery and Resilience Facilities. Automotive suppliers will have to invest tens of billions in R&D, new production equipment and reskilling to deliver climate neutral mobility, circularity and smart manufacturing. Automotive suppliers will be crucial to ensure that the EU maintains its competitive edge in material substitution, circularity, autonomous driving, powertrain and other mobility-related innovations. Unfortunately, the existing framework does not provide suppliers with meaningful support.

Regulatory burden and enabling conditions

Public funding will only contribute to a limited extent to an acceleration of the green and digital transitions if the regulatory burden remains untouched and important enabling conditions are not timely developed.

Key concerns regarding the regulatory burden at the European level include the lack of exemptions for essential use or remanufacturing related to regulatory restrictions of substances (e.g. PFAS, REACH), the growing list of reporting requirements, the creation of multiple frameworks for environmental and human rights due diligence across supply chains. As well as complex and long permitting procedures at the national and regional level.

Crucial enabling conditions include access to finance (equal recognition of components under the EU taxonomy for sustainable finance), deployment of sufficient charging and refuelling infrastructure, the

[4] Regulation (EU) 2023/851, recital 13

development of a deep battery supply chain, hydrogen and renewable synthetic fuel economy, access to markets as well as programs to support a skilled workforce.

State aid reform

Suppliers face a disruptive transformation

The automotive supply industry is undergoing a transformation period. Electrification requires fundamental changes to components and technologies used along the vehicle. Digitalisation is changing the car from a predominantly hardware-defined product into a product co-defined or even defined by software. Circularity and carbon neutrality require unprecedented levels of innovation in terms of material substitution, circular design and sourcing. Electrification alone puts 500,000 internal combustion engine-related jobs at risk[5], while hundreds of thousands of new jobs are created in the battery, electronics and software segments of the automotive supply chain. Just as a mechanical engineer will not automatically make a great chemical data or software analyst, production equipment must be modified and business models altered. This requires significant investments by automotive suppliers in terms of plants, production equipment, research & development, reskilling and recruitment of the workforce. Automotive suppliers in short are facing a disruptive rather than an evolutionary transformation.

Oxford Economics estimates that capital expenditures by automotive suppliers will increase from €36 billion in 2022 to more than €60 billion in 2029. Europe's automotive suppliers lead the world in terms of technological innovation and R&D investment and Europe's automotive sector is well placed to strengthen Europe's digital competitiveness. Nevertheless, more than 70% of suppliers operate at profitability levels that are not sufficient to maintain investments in the long term and three years of crisis have eroded balance sheets.

Existing framework is not fit for purpose

The current framework—from Horizon EU, to IPCEI's, Just Transition and ESF funds—provides suppliers with potential instruments to drive innovation and business expansion in developing regions. Automotive suppliers participate successfully in a range of R&I projects and the Horizon budget reinforces innovation towards net zero emission mobility, connected and autonomous driving and circular battery manufacturing technologies. The framework is, however, not fit for purpose to help the sector master the magnitude of the green and digital transformations while maintaining competitiveness. IPCEI's are currently the primary state aid tool to help transform industries. Still, they are not well suited to scale innovations within the timelines required for a transformation of the magnitude set by the Paris Agreement. Lastly, projects should not take place in the region or country with the most fiscal capacity or in the least-economically advantageous region, but rather in those regions undergoing an industrial transformation and those that could benefit from cluster effects. The

[5] PWC Strategy&, December 2021, Electric Vehicle Transition Impact Assessment Report 2020 - 2040

Single Market is the EU's core achievement and the level playing field requires serious commitment. An EU funded instrument is therefore crucial.

State aid framework needs to accelerate scaling up of green and smart technologies and production methods

To scale innovative technologies concerning zero-emission and autonomous mobility and circular or carbon-neutral manufacturing, automotive suppliers would need a framework that includes a multi-annual commitment of tax credits to compensate for high-risk capital (CAPEX), operational (OPEX) and R&D investments. Similar to the IRA, tax credits should be aligned with the OECD agreement on global minimum taxation and allowed as a deductible in measures taken by Member States to implement commitments regarding corporate taxation. More coordination between national governments would be needed to ensure that industry can meet objectives and avoid that tax money is wasted. Across the EU governments have made significant sums of money available, but these funds are scattered across regions, are complex to access and have highly diverging time horizons.

Currently state aid rules allow support to foster innovation and make the first step from lab to fab, but support to accelerate the scaling of production methods and technologies ahead of the conventional product life cycle is currently not permitted. Instead, the EU should create innovative support schemes, as e.g., targeted subsidies for key industrial sectors and tax breaks/tax-credits that would rely on ex-ante criteria. This would provide the companies with planning certainty, enable rapid processing, and would counter the risk of investments being unfairly diverted to non-EU countries.

The conditions for receiving financial support and the untransparent and unpredictable review procedures do not match the stringent monetary ceilings for support. Reform of the framework is therefore needed.

Automotive suppliers recommend three major pillars of reform to the state aid framework

- Reform the state aid framework to allow targeted and meaningful public investment in industrial transformation
- Introduce holistic funding instruments with simplified, predictable and transparent procedures
- Reform funding programs for reskilling to support regions facing industrial transformation and upscale existing initiatives

Reform state aid framework to allow targeted and meaningful public investment in industrial transformation

The General Block Exemption Regulation (GBER) provides state aid cover for categories of aid which are exempt from the European Commission's (EC) formal notification process. In the absence of an EU funding instrument, reform of the state aid framework will entail amendments of the GBER. However, reforms could also be achieved through amendments of art. 87 of the Treaty on the Functioning of

the European Union (TFEU), reforms of the framework for Important Projects of Common European Interest (IPCEI), and/or a dedicated regulation following the example of the EU Chips Act or the Temporary Crisis and Transition Framework. This section presents reform proposals for the GBER and IPCEI but does not rule out that a dedicated legal instrument may be needed to ensure a comprehensive EU approach, acting in line with the need to maintain the single market's level playing field.

It is crucial that the thresholds in art. 4 are increased and that GBER does not just recognise one-off capital expenditures, but also supports operational expenditures of highly innovative and circular production technologies that are first-of-a-kind in Europe. Support should be tied to ambitious conditions and, crucially, be guaranteed for a five-to-ten-year timeframe as long as companies fulfil predetermined conditions. This alone will provide sufficient planning certainty. Currently art. 4 limits support to fundamental (€40 million) and industrial research (€20 million), experimental development (€15 million), research infrastructure (€20 million), innovation clusters and organisational innovation (€7.5 million).

Introduce holistic funding instruments with simplified, predictable and transparent procedures

Dedicated EU state aid rules for IPCEIs exist already, as allowed for in art. 87 of the TFEU. The IPCEI framework facilitates the emergence of large-scale cross-border projects and addresses market failure in critical value chains. Automotive suppliers have gathered positive experiences with the IPCEIs on batteries and semiconductor technology. Nevertheless, the instrument is perceived as bureaucratic and too inflexible to accommodate for the dynamic market reality of automotive suppliers and technological innovation. Whereas the IRA guarantees funding once companies comply with a prescribed set of criteria, instruments in the EU require significant time investments to apply and both the timing and outcome of the application are highly uncertain.

Currently, the IPCEI framework is the EU's most comprehensive tool to accelerate innovation, though it is ineffective to support industry to accelerate the scaling up of industrial production of innovations. The EU should draw lessons from the shortcomings of the IPCEI framework and provide a holistic funding framework that addresses the following principles:

- **Communication and transparency:** The communication and level of transparency between the European Commission, Member States, project management agencies and applicants should be improved to avoid misunderstandings, time delays and mismatched expectations.
- **Accelerate speed and increase efficiency:** The goal should be a reduction of the overall time used by the Commission services during the application process to enable a quicker scale-up of innovations to eventually increase European competitiveness. A clear and standardised application process with a reliable timeline of 8 to 12 months from submission to project start would greatly increase efficiency and allow companies to better align internal timelines and budgets.

- **Predictability:** The funding framework should identify objectives and clear selection criteria to review applications. Though a certain degree of competition and uncertainty could improve the quality of the proposals, companies should be able to assess their chances realistically based on the degree to which they are able to fulfil the criteria.
- **Relaxation of framework conditions:** Framework conditions for state aid programs should be relaxed. In particular, investments into capacity to scale up IPCEI results and innovations should be made eligible for funding even if this may lead to some conceptual overlap with other programs, such as the European Chips Act. The approach taken in the EU Chips Act to apply the first-of-a-kind definition in a European sense would ensure that important innovations in other regions are not excluded from support to scale up European production capacities.
- **Adaptation of funding gap calculation:** The introduction of a clear, transparent and harmonised methodology to calculate the funding gap – i.e. the necessary investments required to carry out the project and achieve a positive business case – is crucial for companies to carry out an efficient and reliable funding gap calculation. This will also reduce cases of unexpected funding reclaims, thus increasing legal and planning certainty for companies. The funding gap calculation should also allow for the consideration of a counterfactual scenario in which the applicant with a comparable project would benefit sooner and/or to a larger extent from expected market uptake if the project was realised outside Europe (including public funding available elsewhere). The actual funding gap considered should be the difference between realisation in Europe and such a counterfactual scenario.
- **Revision of "claw-back clause":** "Claw-back clauses" reserve the right to reclaim funding in cases with a significantly different project development than what was projected in the application. It is therefore important that claw-back mechanisms are predictable and provide a high level of legal certainty. Funding reclaims should only be possible in cases of proven violations of clear and pre-determined funding rules. Repayment obligations should not include financial returns due to faster as anticipated market uptake of the product/technology. A faster time-to-market should rather be seen as a strong signal of the intention of beneficiaries to meet intended project goals, maintain or establish technological leadership and secure highly qualified employment in Europe.

Reskilling programs should target regions facing industrial transformation and upscale existing initiatives

Overall, the funding landscape in the area of up- and reskilling is very fragmented and unclear and there is a lack of communication about funding opportunities. In the context of the Year of Skills and beyond, we hope that the European Commission provides clear and target group-oriented communication. Companies know their needs best. Often, companies have already created up- and reskilling initiatives that have been adapted to professional practice. But further training costs time and money, especially if the measures are widely used. The creation of financial incentives to scale these initiatives could significantly expand the use of existing measures. Furthermore, suggestions to treat operational expenditures linked to running a reskilling project as investments would be helpful.

We welcome the proposal of a coordinator on Member State level for the envisioned structured dialogue in the course of the Year of Skills 2023. The national coordinators are supposed to ensure the coordination of relevant activities at national and regional level – an initiative that is long overdue to manage the complex EU funding landscape and eventually benefit from the EU initiatives on national and regional level. Coordination and information should furthermore be provided by EU pilots/contact points.

Ambitious targets must be accompanied by concentrated efforts on enabling conditions

The EU's fit for 55 package sets ambitious targets for industry to be met in a very tight timeframe. Automotive suppliers are committed to dedicate all their resources to play their part in transforming our society and economy to become climate neutral. However, these contributions are at risk of being in vain, if policy makers do not provide the enabling conditions. A rapidly increasing regulatory burden, incoherent regulatory requirements and a lack of technology openness forms a real hurdle. Policymakers should address these hurdles and ensure progress on the delivery of five crucial enabling conditions:

Charging and refuelling infrastructure: Analysts expect that already by 2027 production of battery electric vehicles will surpass the production of internal combustion engine vehicles. And this year, the production of battery electric light vehicles could reach 1.8 million units across the EU alone. Automotive suppliers have scaled the production of all needed components for these vehicles. Unfortunately, the rollout of charging infrastructure is going slow, with 50% of all chargers in Germany and the Netherlands. For commercial vehicles, charging infrastructure is mostly absent. By 2030, the EU-27 needs to scale up from 340,000 to at least 3.4 million public chargers and refuelling points, with some estimates even indicating a need for 5-7 million charging and refuelling points. This means going from an installation of 1,600 public charging point per week in 2021 to 10,000 per week in 2030. That figure includes the infrastructure needs of passenger cars, light commercial vehicles, and trucks and buses[6].

Battery supply chain: Despite the enormous magnitude of the challenge, the deployment of charging and refuelling infrastructure will be fruitless if the EU does not foster the development of a deep battery supply chain, including processing of battery chemicals and sourcing of raw materials. The fact that most of the raw materials are insufficiently present on the European market reinforces the need of a trade and industrial policy on the basis of both openness and strategic autonomy.

Hydrogen and renewable synthetic fuels economy: In order to make hydrogen-powered mobility work, a ramp-up in the production of green hydrogen is required. Hydrogen is necessary for both hydrogen ICE as well as fuel cell applications. Fuel-cell applications based on hydrogen as an energy carrier are especially well-suited for long-haul transportation. They outperform BEVs in terms of faster refuelling time and lower weight. Moreover, less space is needed to perform the fuelling of the hydrogen along highways. Regarding the AFIR Regulation, Europe needs to ensure a comprehensive

[6] McKinsey, November 2022, Europe's EV opportunity—and the charging infrastructure needed to meet it

fuelling network to enable the market ramp-up of hydrogen powered vehicles, particularly in the heavy-duty segment.

To support the ramp-up of the European hydrogen industry, a time-limited (i.e. until 2030) direct fixed premium subsidy for EU-wide production of green hydrogen should be set up outside the ETS Innovation Fund. After the initial phase, this subsidy should be replaced by capacity auctions for green hydrogen production, enabling the Commission and Member States to control capacity growth and limit overpaying via competition.

Access to finance & taxonomy: Access to finance will be critical to enable suppliers to invest. It is therefore critical that contributions of automotive suppliers to environmental objectives are recognised by investors and public authorities. The EU sustainable investment rules recognise the assembly of a zero-emission vehicle as sustainable, and should do the same for its components, if their use in a zero-tailpipe emission vehicle can be verified. Efforts to enhance circularity should similarly be recognised in the upcoming taxonomy delegated act on other environmental objectives.

Access to markets: The EU should revive its commitment to an open economy and improve EU business' access to third country markets. First priority should be to ratify the negotiated agreements with Mexico, Mercosur, Chile and New Zealand. Hopefully, ongoing negotiations with Australia, Indonesia, India and Thailand can be brought to conclusion in the near future. Free trade agreements (FTAs) create opportunities for European businesses in foreign markets and will help them secure new revenue streams essential to scale green innovations and conduct necessary investments. Furthermore, raw materials partnerships could help suppliers diversify sourcing.

More emphasis on coherence between policy objectives and regulations from permitting to standard setting

Environment permits for manufacturing facilities: best practices from the EU Chips Act (Art 14) could be applied to other sectors. Identified priority industry sectors should benefit from facilitating permitting procedures. These will require a one-stop shop to avoid that years go by until all permits and potential conflicting regulatory requirements are settled. The Commission should drive a coordinated effort to ensure Member States fast-track environmental procedures to provide green technologies faster with the required certifications to be placed on the market.

- **Restrictions on use of substance**: There should be coherence between environmental regulations and a transformative industrial strategy. The recent Commission's Chemicals Strategy for Sustainability included a proposal to restrict all uses of PFAS under the regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) which undercuts ambition to strengthen Europe's role in chip manufacturing. The potential classification of lithium salts as a health hazard by the European Chemicals Agency is another example. Industry will need exemptions for substances which use is essential or where benefits of use outweigh the costs and suitable alternatives are available.

- **Remanufacturing:** The current proposals for the revision of the REACH Regulation and the ELV Directive do have the potential to no longer allow existing processes for remanufacturing with the consequence to make the circular use of components impossible or economically no longer feasible. CLEPA asks for an exemption of remanufacturers from REACH provisions according to Art. 33, SCIP notification and reporting obligations as foreseen in ELV for substances in parts and components going through a remanufacturing process and that were put on the market before the above-mentioned obligations for substances were existing. New components used in the remanufacturing process shall fulfil the latest ELV and REACH requirements as long as requalification is still possible. Such exemptions would follow the principle of the Repair as Produced existing in the current ELV Directive.

- **Sustainability due diligence:** The raw materials critical for the transformation are not sufficiently located in the EU, and for many of the (processed) raw materials undesirable dependencies exist on one or very few countries. A coherent framework for supply chain due diligence could create the incentive for companies to engage with their suppliers and reduce the environmental footprint along the full value chain. Unfortunately, policymakers have introduced multiple different due diligence initiatives (deforestation, forced labour, CSDDD, battery regulation) without consistent alignment. Furthermore, vague definitions and overly optimistic interpretations of the level of control companies can exercise over their supply chains are likely to result in legal uncertainty. Instead of a framework that fosters engagement and investments in diversification and greening of supply chains, legal uncertainty is at risk to result in disengagement and puts at risk the sourcing of raw materials from regions with persistent high risk without providing alternatives for sourcing.

- **Reporting requirements** Companies face a myriad of reporting requirements at the regional, national and European level. Sustainability reporting, due diligence frameworks to resilience driven reporting requirements regarding semiconductor and other critical supplies (e.g. single market emergency instrument, critical raw materials act) redirect staffing and internal projects to compliance with reporting instead of obtaining strategic objectives.

Technology openness will remain crucial

Europe is now the only geographical area banning the internal combustion engine. Considering it in the light of the decarbonisation objective, it remains to be seen if this choice is the best one. Electrification will be a central technology to decarbonise road transport, but will likely not be the only technology to serve all different uses. Hydrogen, sustainable renewable fuels (including e-fuels) could be crucial for the heavy commercial vehicle segment, niche applications and the existing vehicle fleet. Nevertheless, the regulatory framework currently provides no recognition nor incentives for the development of these technologies.

Objective and mission-oriented industrial strategy

Industrial competitiveness is rightfully at the top of the agenda for policymakers. The net zero industry act's focus on fast tracking permitting procedures and enhancing access to finance is right. Nevertheless, the approach of the NZIA to set production targets for eight predefined technologies risks overlooking critical parts of value chains and the importance of digitalisation for the EU's competitiveness.

A green transition will require full use of all digital capabilities from smart mobility to manufacturing to ensure it does not go at the expense of prosperity and industrial competitiveness. To this end, the Commission identified 2021 six strategic clusters. In all but one, the automotive industry fulfils a critical role (batteries, semiconductors, raw materials, cloud& edge computing, and hydrogen). The Green Industrial Plan and Net Zero Act should therefore take a technology-open and value-chain approach that builds on existing strengths. Automotive suppliers see two potential areas of focus: smart mobility & infrastructure and circular and climate-neutral manufacturing.

EU Member States should work together on ambitious programs, also referred to as moonshot programs in economic literature[7], where an efficient regulatory framework, targeted public support through subsidies and strategic public procurement reinforce each other to obtain the target of a green and smart society.

'Moonshot' program I: smart, climate neutral mobility and infrastructure

Smart mobility will be crucial to reduce emissions. With as many as 9 billion people are predicted to live in urban areas within the next 25 years, there is a clear imperative for smart mobility to ensure mobility and reduce mobility related emissions. The adoption of autonomous features in cars will lead to environmental benefits: autonomous technologies have the potential to easing traffic flow by allowing optimized acceleration and deceleration, thus reducing energy consumption and emissions, and to allow better arbitration of roads & parking to reduce their impact.

Ecorys concluded in April 2021, in a study requested by the ITRE committee of the European Parliament, that Europe is well-positioned to take a leadership position in the market of CAVs due to its strong legacy and innovation in Advanced Driver-Assistance Systems (ADAS) and Cooperative Intelligent Transport Systems. This leadership can be illustrated by the fact that roughly 60% of all global patents in autonomous driving and an estimated 68 to 70% of CAV innovations come from European suppliers.

Nevertheless, significant challenges impede faster adoption of autonomy, from standardisation, to a lack of digital infrastructure, data processing capabilities and the roll-out in cities, including regulations.

[7] Mariana Mazzucato, January 2021, Mission Economy: A Moonshot Guide to Changing Capitalism

An IPCEI on autonomous driving could fast track the development, such a project could address the following elements:

- Development of a joint AD architecture to distinguish ourselves from competitors in Asia and North America
- Industrialisation of AD components
- Data and data driven development
- AI
- Scaling and ramping up of AD technologies
- Vehicle fleet tests
- Use cases: level 4/5 automation in cities, automation also in other types of road transport, e.g. HDV
- The IPCEI on autonomous driving could be extended to include projects that are focused on clean mobility technologies. Areas of focus could be:
    - Optimisation of batteries and storage technologies
    - Power electronics, e.g. for electric engines to enhance energy efficiency
    - Mobile fuel cell technology

The uptake of autonomous mobility will furthermore require the upgrade of public infrastructure into smart highways containing sensors and software. This will require new forms of public procurement. Intensive communication between contracting authorities, engineers, the automotive sector, IT/telecoms sectors and procurement lawyers will be vital. The 2014 public procurement directive provides for cooperative procurement, but it has not been tried at grand scale for smart highways. The Directives permits the use of descriptive technical specifications, whereby the public buyer describes the detailed solution, focusing more on the intended goal rather than the means to achieve it. Contract terms could furthermore reflect innovation-friendly aspects: exit clauses that apply when the market brings an even more suitable solution than the one currently under development (with fair exit conditions for the supplier); contract modification clauses, due to high potential of further innovation ascertained during the contract performance; and value-engineering clauses covering the possibility to improve the quality and cost of solutions delivered during the implementation phase. These clauses may provide for the payment of bonuses to suppliers for improving the quality of the solutions.

The uptake of net zero tailpipe mobility in the consumer segment is progressing, but incentive schemes will be needed to fast-track the uptake in the commercial vehicle segment. Furthermore, public procurement can be used to accelerate the replacement of buses and special purpose vehicles (e.g. police cars, refuse trucks).

Moonshot program II: Circular, smart and climate neutral manufacturing

The EU and its Member States could consider a similar ‘moonshot’ program for a digital circular manufacturing economy, where digitalisation helps to maintain the value of materials as long as

possible and increases efficiency of production and supply chains to reduce the costs of circular and climate neutral manufacturing. Such a program should build on relative competitive strengths of

Europe in circular material innovation, mechanical manufacturing and the automotive industry's leading role in the implementation of industry 4.0.

This should entail maximising the value of data and developing and deploying sustainable digitally-enabled solutions to improve products and services, as well as production, material substitution and design for recycling. Furthermore, the program could include incentives for the procurement of energy-reducing technologies such as heat pumps.

Every form of progress starts with data to improve visibility of the environmental impact along the manufacturing process. Accounting for embedded GHG emissions and consumed resources (e.g. water, raw materials) in products is a complex exercise which requires global collaboration. Enhanced management and the sharing of data will be essential, but require a fast digitalisation of Europe's industrial base. R&I on most of the relevant technologies is already done (AI, 5G/6G) or currently being addressed in R&I partnerships. But when it comes to scaling up and industrializing these technologies (e.g. for battery cell production) IPCEI or other strategic public investment programs could fulfil a catalyst role.

The circular, smart and climate neutral manufacturing program will go far beyond financial support, and include standard setting, calculation methodologies for recycling, life cycle assessments, and sustainable design guidelines. Furthermore, there should be a push to drive the recovery of materials at the end of the life of productions through certification schemes for recycling companies and incentivisation of close cooperation between manufacturers, OEMs, recyclers and other involved operators.

The transition towards circular and smart manufacturing, will however require additional steps to also obtain carbon neutrality. As suppliers and vehicle manufacturers manage to reduce tailpipe emissions, the relative weight of material emissions is set to increase from 35% to 60% in 2040.[8] It is critical that suppliers will be able to access low carbon steel, aluminium, battery chemicals, polymers, glass and processes raw materials.

With the Innovation Fund, Europe has created one of the world's largest funding programmes for the demonstration of innovative low-carbon technologies for activities to fall within the scope of Annex I of DIRECTIVE 2003/87/EC. The Innovation Fund could fulfil a critical role to establish a low carbon material supply chain. The trilogue agreement on Co2 performance standards from November 2022 recognised that funding from the EU Innovation Fund should also be available to support innovation in the mobility ecosystem. In addition to support for the material supply chain, projects could also be related to design for circularity and material substitution.

[8] McKinsey, January 2021, Global Energy Perspective

However, in February 2023 the Council adopted REPowerEU which reallocates around €12 billion from the innovation fund to finance expenditures of the REPowerEU initiative. Though, CLEPA supports the Commission's focus on a faster rollout of renewable energy across the continent, it is crucial that

companies have certainty around the scale and timeline of programs falling under the Innovation Fund.

Critical automotive value chains and competitiveness

Automotive industry will be crucial to help strengthen EU's presence in five of six of the EU's industrial strategy's critical value chains

Automotive industry fulfils key role in five of the six strategic areas defined in the industrial strategy review of 2021 (automotive relevant bold: **raw materials, Li-ion batteries, semiconductors, hydrogen, cloud & edge computing**, active pharmaceutical ingredients). Furthermore, the automotive industry is a critical end market, driving both scale and innovation in Europe's chemical, steel, aluminium and other material industries.

Raw materials

Raw materials, automotive is a key market for many of the raw materials identified as critical in the 2021 review. Automotive demand will be crucial to mobilize investment in the development of a stronger European supply chain and a key partner to leverage benefits of raw material agreements with third countries. Automotive suppliers will need access to raw materials of sufficient quality, but also extracted and produced according to the highest ESG standards, including

- *LREE and MREE rare earths* (electric motors)
- *Magnesium* (lightweight components)
- *Cobalt, natural graphite, strontium, platinum group metals* (fuel cells, batteries, catalytic converters)

Li-ion batteries

Automotive sector is responsible for more than 90% of the demand for Li-ion batteries, even though a battery supply chain will be crucial for the transition to a renewable energy economy at large. Despite the majority of the value creation being linked to the procession of battery chemicals and cathode active materials, significant value is contained in the production and development of thermal management, power electronics, battery management systems (around €19 billion by 2035) and circular design.

Semiconductors

Automotive industry responsible of 37% of the demand for European semiconductors, global market share much less, but demand set to grow by threefold until 2030 and increase from 8% to 14%. Autonomous driving, electrification and the transition towards the software defined vehicle are likely to not just accelerate demand for semiconductors with annual double digit growth, but also lead to innovation and closer collaboration between the automotive and semiconductor industry.

Cloud & edge computing

The automotive industry will fulfil a key role to scale cloud & edge computing innovations. The total value created by connected-car use cases could reach more than $550 billion by 2030, up from about $64 billion in 2020 (Exhibit 5)[9]. As of 2022, there are approximately 52 million connected vehicles in Europe. The pace of rollout of advanced connected-car use cases such as predictive maintenance is highly contingent on the availability of 5G and edge computing.

Hydrogen

Automotive sector may provide a key role helping to scale the hydrogen economy, with hydrogen possibly being used in heavy duty vehicles and fuel cell electric vehicles. Arthur D. Little considers the automotive and chemical industry crucial early adopters of green hydrogen, before prices fall sufficiently to see wider implementation in heavy industries, aerospace and shipping[10].

Automotive suppliers are globally competitive and leaders in technological innovation, but competitiveness is under pressure

Contribution of automotive suppliers invest annually around €30 billion in Research and Development. In the years to come the annually investments in terms of capital expenditures, reskilling and R&D expenses by automotive suppliers dedicated to zero-mobility is estimated to reach €20 billion.

Automotive suppliers are good for more than half of R&D investment in areas that are pivotal for the automotive industry's global competitiveness: e-mobility (65%), autonomy (65%), connectivity (59%)11. In the last five years, organisations have invested more than €8.3 bn in AI-led start-ups in areas of customer/driver experience and mobility services, with around half of that investment located in Europe12.

[9] McKinsey, October 2022, The future of automotive computing: Cloud and edge
[10] Klaus Schmitz, December 2021, The role of hydrogen in building a sustainable future for automotive mobility
[11] R&D Survey 2021, IHS Automotive, April 2021
[12] European Commission, September 2021, Technology Focus on Sustainability in the Automotive industry in Europe

European automotive suppliers exported €53.7 billion in automotive components throughout 2022 and generated a trade surplus of €25.5 billion. Export remains critical to support Europe's automotive industry, and European automotive suppliers are competitive in global markets. The strength of this base is co-determined by significant inflows of foreign direct investment and the interplay between European and non-European companies. In reverse, European suppliers strengthen their competitiveness thanks to returns on investments, globally.

Nevertheless, imports grew by more than 20% over 2022, compared to export growth of only 2.8%. Europe's competitiveness cannot be taken for granted. A significant package of Green Deal initiatives, from carbon pricing to highly ambitious emission and pollutants norms will further pressure the sector's competitiveness in the years ahead.

Development of an EU battery supply chain essential to secure critical elements of the automotive value chain for Europe. This goes beyond the assembly and manufacturing of battery cell and cathode active materials. Thermal management, power electronics, battery management systems are crucial competences that Europe automotive suppliers are well positioned to develop further in the years ahead, but presence of a robust European battery supply chain will be critical. Though, the EU has attracted major investment commitments over the previous years with close to 50 Li-ion battery factories planned for Europe by 2030. Recent studies suggest that 68% of potential battery production capacity in Europe (1.2TWh) is at risk of being delayed, scaled down or not realised if further action is not taken[13].

[13] Transport & Environment, March 2023, How not to lose it all

About CLEPA

CLEPA, the European Association of Automotive Suppliers, represents over 3,000 companies supplying state-of-the-art components and innovative technologies for safe, smart, and sustainable mobility.

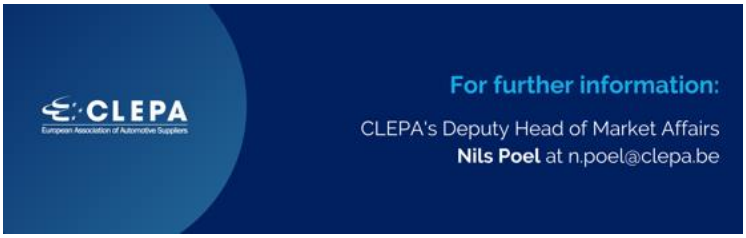
CLEPA brings together over 120 global suppliers of car parts, systems, and modules and more than 20 national trade associations and European sector associations. CLEPA is the voice of the EU automotive supplier industry linking the sector to policy makers.

The automotive sector accounts for **30% of R&D** in the EU, making it the number one investor.

European automotive suppliers invest over **30 billion euros** yearly in research and development.

Automotive suppliers register over **39000 new patents** each year.

Automotive suppliers in Europe generate **1.7 million** direct jobs.



CLEPA

Cours Saint-Michel 30g,

1040 Brussels, Belgium

www.clepa.eu

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