



# BUILDING A STRONG AND MODERN EUROPEAN INDUSTRY

VIEWS ON A RENEWED EU INDUSTRIAL STRATEGY



## Who are we?

BusinessEurope is the leading advocate for growth and competitiveness at the European level, standing up for companies across the continent and campaigning on the issues that most influence their performance. A recognised social partner, we speak for all-sized enterprises in 34 European countries whose national business federations are our direct members.



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# Foreword

Why do we need a renewed EU industrial strategy?

A strong industry is fundamental for a robust economy, which is the basis for creating a cohesive society that enables us to deal with current and future challenges and grasp opportunities that arise.

We are living through times of great change, at unparalleled speed, and of disruptive nature in some of its dimensions. Technological progress and innovation are producing a deep transformation in industry and the way it operates, in a cross-sector phenomena. This requires industry to quickly adapt and to anticipate future trends.

The progress that industry is forging ahead also brings profound changes to our society. Smilingly simple innovations improve our lives daily, such as real time information on traffic or public transports, while others will result in vital steps forward such as the use of biometric data for better prevention and more accurate identification of illnesses.

Despite an endless list of positive developments, the changes we are witnessing also raise concerns. As history demonstrates, some jobs become obsolete as the world progresses. But it also shows that new jobs are created. Hence, the solution cannot be stopping progress but ensuring we are prepared for it. We need to better and more efficiently match rapidly changing skill needs and to promote adaptability of workers, while at the same time properly managing transition periods that follow disruptive innovations, and ensuring widespread benefits from innovation.

In addition to this fast technological progress, we are also going through a fast-changing political and economic context at global level, with increased protectionism and the emergence of inward looking national industrial policies. Europe must support its industry, but not by becoming inward looking. With half of European business in global value chains, a closed Europe would only hurt us. The EU must therefore continue strengthening member states' and companies' ability to face global competition, including by further strengthening the European single market that is our greatest asset, fighting unfair trade practices, and by promoting our standards through modern and comprehensive trade deals. The EU is an open market and, to be able to export our highly innovative and competitive goods and services, we need to open new business opportunities in fast growing markets.

At EU level, attempts have been made to implement "mainstreaming of industrial competitiveness" across different policy fields. Although the approach is occasionally delivering, it is not working as expected. We saw some positive results supporting industry such as the



Paris agreement on climate change, CETA, or progress in the digital single market. But we also see failures to deliver sufficient answers on critical issues such as the Commission's original proposal for a reformed EU ETS, the financial legislation or the Union Customs code.

A renewed European industrial strategy must reflect the ongoing transformations, be mindful of the several challenges at hand for society and industry, and of Europe's persistent competitiveness shortfall during the last years. These issues are of fundamental importance in the debate on the Future of Europe, and should be an integral part of it, if we want to ensure that the EU can better deliver growth and jobs to its citizens and companies. The EU must develop an outward looking approach understanding competition at global level, provide industry with a well-functioning and predictable legislative framework, and act as an enabler for European industry to flourish and innovate. It must also incentivise progress and innovation, create the conditions for industry to provide solutions to emerging challenges – being it in the sustainability, health or other sectors, and ensure European high standards regarding labour, consumers and the environment are maintained and exported.



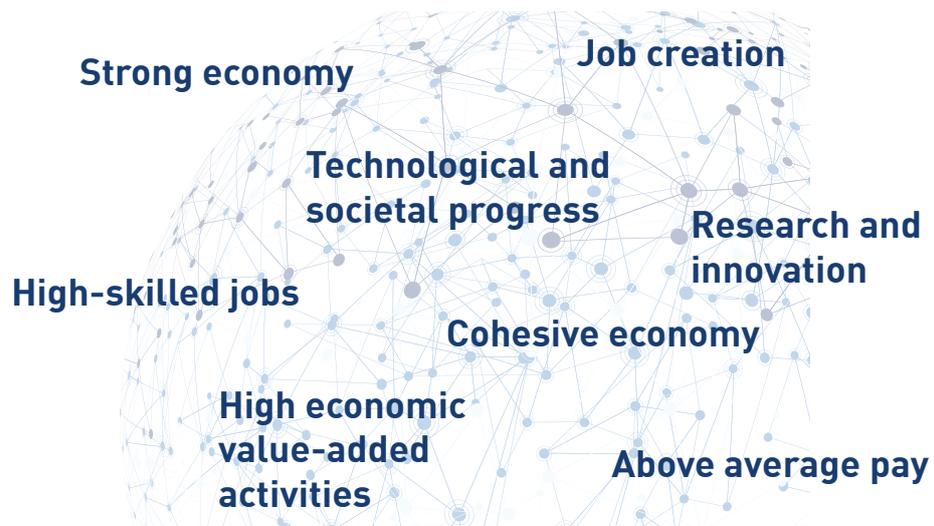
# Table of contents

Foreword .....	3
Executive summary .....	6
Part 1: <b>The role of industry</b> .....	<b>8</b>
Part 2: <b>Short-term challenges and opportunities</b> .....	<b>13</b>
A. The situation of EU industry today .....	13
B. Short-term policy actions .....	20
Part 3: <b>Looking forward: long-term vision and how to get there</b> .....	<b>25</b>
A. Creating a vision for Europe's industry .....	25
B. Building the foundations of this vision .....	30
Annex: <b>Examples of EU initiatives where mainstreaming industrial competitiveness is poor</b> .....	<b>34</b>

# Executive summary

## Why do we need a renewed EU industrial strategy?

Industry is the backbone of Europe's economy



### Industry is facing:

- Rapid progress and disruptive innovations which lead to important improvements and possibilities but also raise concerns and challenges.
- A changing geopolitical context with increased protectionism.
- Consequences of Europe's persistent competitiveness shortfall during the last years.
- A future of Europe under discussion.
- A European "mainstreaming of industrial competitiveness" which is working only occasionally, tabled proposals not always in line with competitiveness concerns, sector-specific cumulative cost assessments that did not bear results, and insufficient action-oriented discussion with the industry.

### What does industry need?

#### A dedicated and integrated strategy that:

- helps the European industry to adapt in a fast-changing world, an outward looking approach understanding competition at the global level and helping to create a level playing field, a well-functioning and predictable legislative framework, and act as an enabler for European industry to flourish and innovate.

- ensures that the benefits of this progress are spread out to the society as a whole and that creates the conditions for industry to provide solutions to emerging challenges – be it in the sustainability, health or other sectors, and ensure European high standards regarding labour, consumers and the environment are maintained and exported.
- makes EU governance fit for purpose: use the High-Level Group Energy Intensive Industries that shall be transformed by receiving a clear objective and a broader mandate, pursue the better regulation agenda rigorously, further scaling up the role of the Competitiveness Council, real mainstreaming across policy areas.

### A vision for the future

- Create a dedicated and integrated approach that allows seizing the opportunities in the macro-trends that can be identified already today in the fields of energy, circular economy, digitisation and urbanisation, and understand the changes that these bring along.
- Define ambitious strategic objectives for industry and linked services for 2030 to build a shared vision, reflecting the real shift in business practices and their statistical reporting.
- Develop a dashboard of indicators with possible options such as: industrial output, industrial employment, joint production, average annual investment of the manufacturing sector.



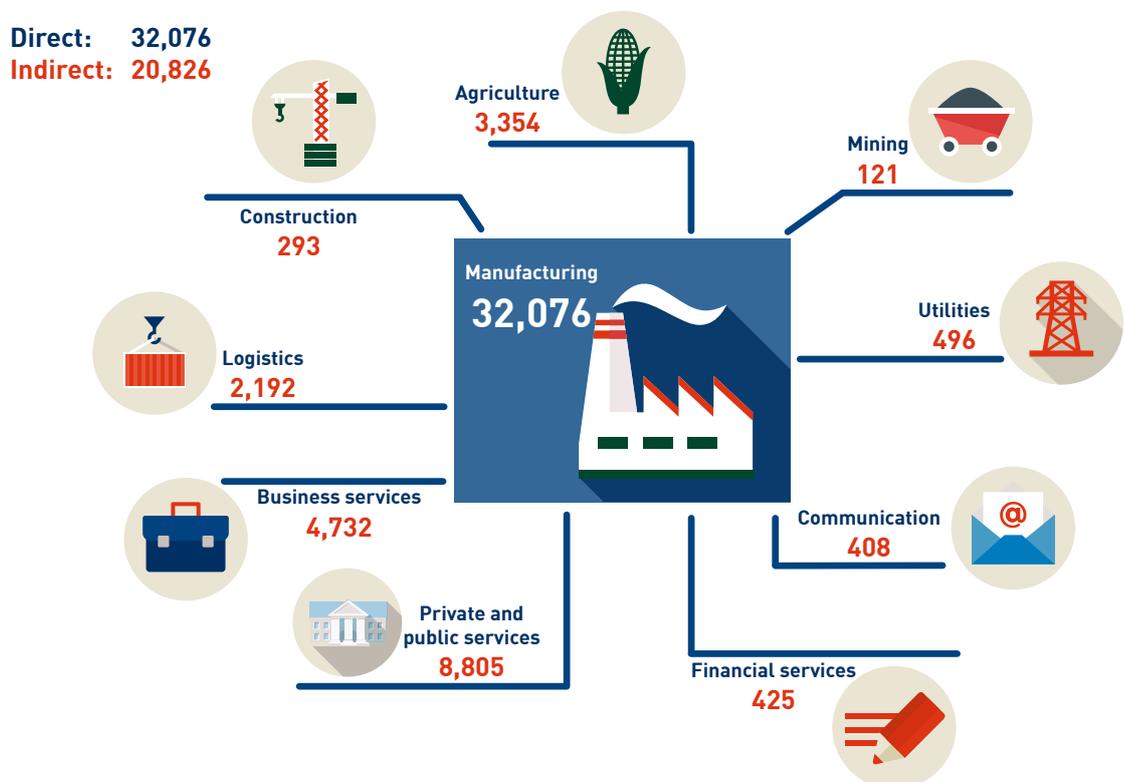
# PART 1: THE ROLE OF INDUSTRY

The benefits of industry<sup>1</sup> and its contribution to society are vast and of key importance for our everyday life and European wealth creation. Due to its beneficial effects on other sectors, industry is much more important for the overall economy than it is often given credit for, significantly contributing to economic growth, employment and innovation activities.

Europe is a global leader in many industries which supply high-value jobs, for instance the automotive, aeronautics, engineering, chemicals, energy solutions and pharmaceutical industries.

Industry accounts for over half of Europe’s exports, around 65% of research and development investments, it provides more than 52 million jobs (through direct and indirect jobs, meaning 24% of jobs in Europe), generally high-skilled jobs and above average pay, and in high economic value added activities. Industry generates strong positive spill-overs on the economy. In certain countries, industrial frontrunners generate 25% of all added-value through direct and indirect effects.

**Chart 1. Direct and indirect employment in the manufacturing sector, 2016 (in 1,000 employees)**



Source: BusinessEurope’s calculations based on Eurostat data

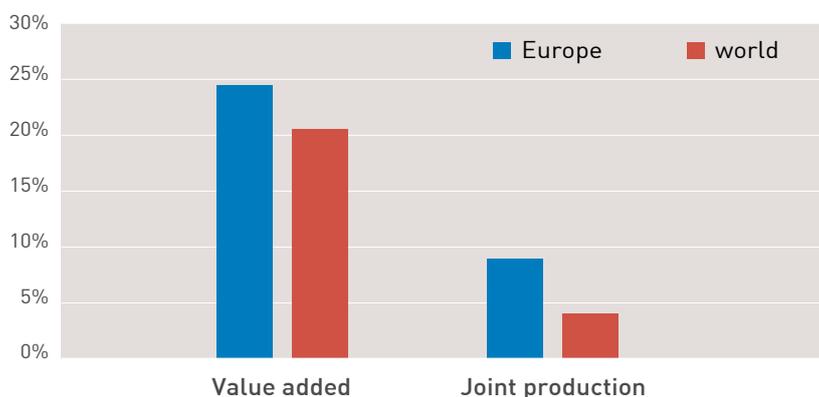
Industry can also have a very profound impact on the region where it is located, in terms of development, innovation and job creation, with frontrunner companies having an anchor role, cooperating closely with SMEs, mid-caps and larger enterprises, and service companies developing to answer to specific needs.

Industry is also renovating itself. The reality of industry and the way it operates has been radically transformed in the past few decades, with globalisation and digitisation as main drivers. The strong value chains created by companies of different sizes are increasingly important, and a number of SMEs emerge in connection with mid-caps and large companies. The synergies created by the interlink of companies of different sizes are of fundamental importance, particularly for SMEs, which receive an impulse in terms of innovation capacity, knowledge and access to technology.

Businesses from around the globe cooperate today in real-time, across countries and in international networks, platforms and clusters. Processes that used to be developed together are now split into different parts of the world, underlining the importance of openness to trade as a key driver of the world economy. Specific and tailor-made customer solutions are constantly being developed, contradicting the mass production culture of the past decades. The sources of value added also changed, with assembling parts becoming a small share of the value creation, which has shifted into design, servicing, and aftercare.

The relationship between services and industry also changed and has become more and more intertwined. Manufacturing increasingly buys, produces, sells and exports services. Services are by now the most important “raw material” of the manufacturing industry, strongly benefiting from industry’s demands in the course of upstream and downstream value chains<sup>2</sup>.

**Chart 2. Importance of the industry-services “combined sector”**



Source: IW Köln, *Industry as a growth engine in the global economy, 2013*

<sup>1</sup> Industry refers to manufacturing, plus broader activities such as mining, construction and energy generation.

<sup>2</sup> <https://www.businesseurope.eu/sites/buseur/files/media/imported/2014-00243-E.pdf>

The former dichotomy between industry and services has developed into a joint production (servitization) which brings important benefits, of particular strength in Europe: this “combined sector” represents 24.3% of value added in Europe in comparison with a world average of 20.8%, and joint production accounts for 8.5% of total value added in Europe in comparison with 3.7% in the world (chart 2).

Complex global and digital value chains have been built, and start-ups with the right business idea can become successful global players overnight, bringing an emergence of nano-multinationals. We have widespread use of sensors and automation. 3D printing, artificial intelligence, blockchain, robotics, internet of things, are all a reality these days.

Industry 4.0. aims at building the factories of the future. Industrial data and analytics driven intelligence are already the source of new inventions and the basis for new business models. Car producers, beyond the services of insurance and an after-sale service on maintenance, are now investing in connected services and new ride-sharing proving mobility services. Hospitals and doctors have new technological options to provide the best care to patients, including telemedicine and eHealth.

Factories of the past have been modernised and industry is able to respond to economic and societal challenges, for instance through a continuous improvement of energy efficiency, new techniques that reduce resource intensity, and new medical developments.

### **Labs Network Industrie 4.0**

The initiative supports mid-sized companies in Germany in taking a leading role in the global digitalisation. Members can test new technologies, innovations and business models and review their economic feasibility prior to their market launch.



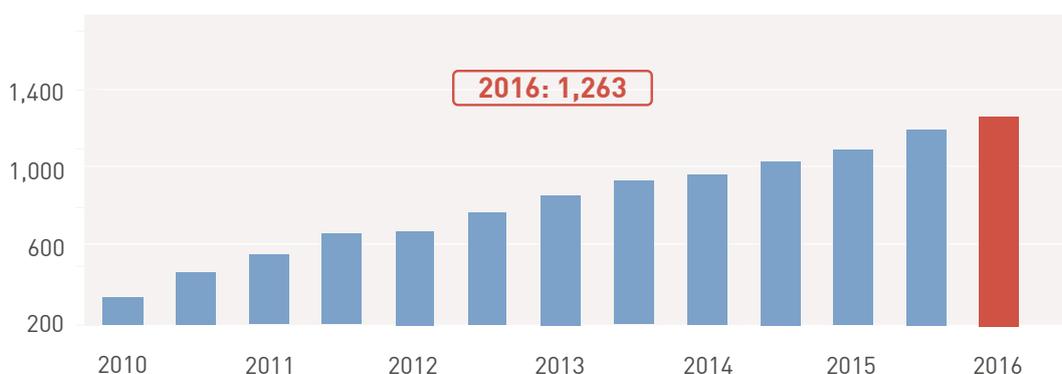
All of these ongoing transformations explain the importance of open trade for the development of a prosperous and innovative industry. Worryingly, and as clearly demonstrated by chart 3, protectionism is on the rise. Europe must therefore remain an open market and resist inward looking national industrial policies. The measures taken by main competitors to support their industry must also be duly accounted for when designing a European industrial policy, ensuring that companies compete in a level playing field.

### Ceramics in healthcare and renewable technologies

Due to their biocompatibility and wear resistance, ceramic biomedical implants are an optimum solution. Ceramic is also widely used in wind turbines and solar panel components such as anti-friction bearings or fuel cells.



**Chart 3. Number of trade restrictions in the G20 countries**



Source: World Trade Organisation

Moreover, such strategy must account for the different existing strengths. Each European country and region must compete through excellence, by moving up in the global value chain, by being innovative in their respective fields. Starting from existing capacities, European countries and regions must therefore develop smart specialisation strategies, making full use of the single market and creating synergies across territories for economies of scale and more efficient results.

### **Wind power and the industrial value chain**

Bringing down costs for offshore wind energy creates new business across sectors.

60 companies, incl. from the steel sector, work together to push costs of windmills jacket foundations further down and to identify manufacturing processes that can improve the supply value chain.



Europe's industry is a world leader and the business model of European companies is based on innovation, creativity and high standards. Companies must continue to adapt to this fast-changing technological progress, which is also characterised by its ample scope, potentially able to impact all industries and sectors. Companies in all areas need to constantly adjust their business models and increase their innovation capabilities or they are quickly out of the market. Europe must therefore build on its strengths, being it the single market, well educated workforce and creativity, and enable its industry to stay internationally competitive.

## PART 2: SHORT-TERM CHALLENGES AND OPPORTUNITIES

### A. The situation of European industry today

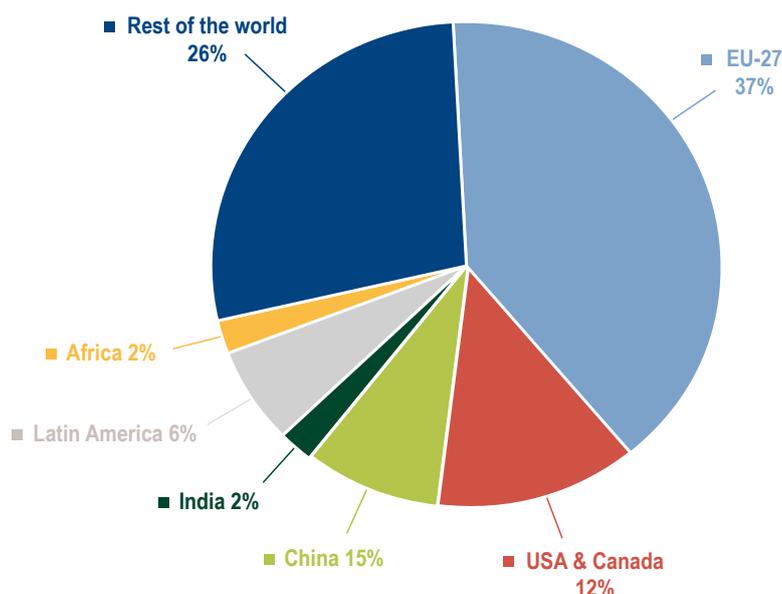
European industry continues to be a global leader in many industrial sectors. It is responsible for 37% of global manufacturing exports, the largest share of trade in manufactured goods today (chart 4).

However, when looking at trends in recent years and comparing European industry to its competitors in other world regions, it becomes clear that it is under severe pressure.

#### The sharpest loss of global trade in manufactured goods

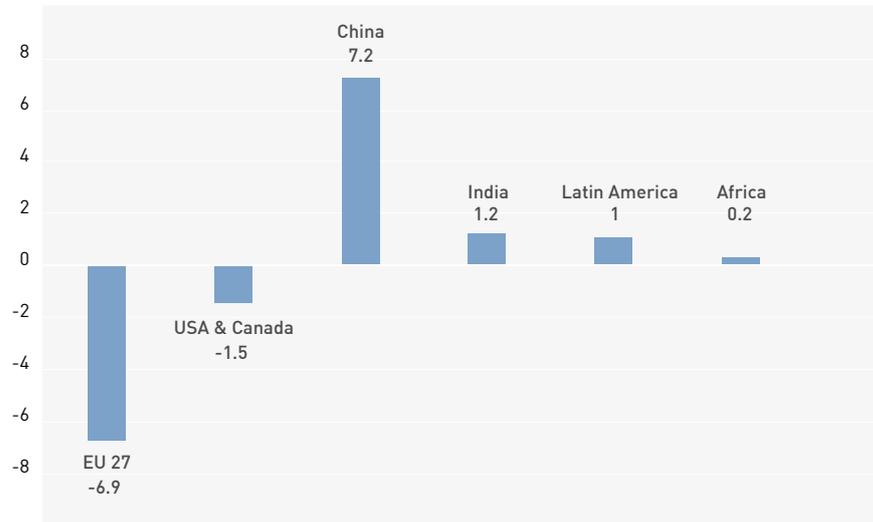
Despite remaining strong, the EU's share in global manufacturing exports declined by nearly 7 percentage points from 2004 to 2013, by far the sharpest loss of global trade in manufactured goods (chart 5). North American shares of manufacturing exports also declined, however at a much lower pace (minus 1.5 percentage points). This is a clear indication that European manufacturing industries have lost ground compared to its global competitors.

Chart 4. Global share of manufacturing exports (% of global flows) in 2013



Source: European Commission, EU structural change, 2015

**Chart 5. Changes in global shares of manufacturing exports 2004-2013 (% points)**



Source: European Commission, *EU structural change, 2015*

## A declining role in the overall EU economy

Alongside a decline of the EU's share in the global trade of manufactured goods, the role of the manufacturing sector in for the EU economy also shrank. Between 2000 and 2014 the contribution of manufacturing activities to the EU economy fell from 18.8% to 15.3% of gross value added (GVA), with nearly all member states confirming this downward trend (chart 6). Latest data brings a slightly more positive situation as the industrial sector's share in the EU economy is stabilising. It has stopped decreasing and slightly picked up in recent years both in nominal and real terms and is currently at 15.6%<sup>3</sup>. It shows that history is not grave in stone. Despite being far from an optimal situation for industry in the EU, it is possible to reverse trends.

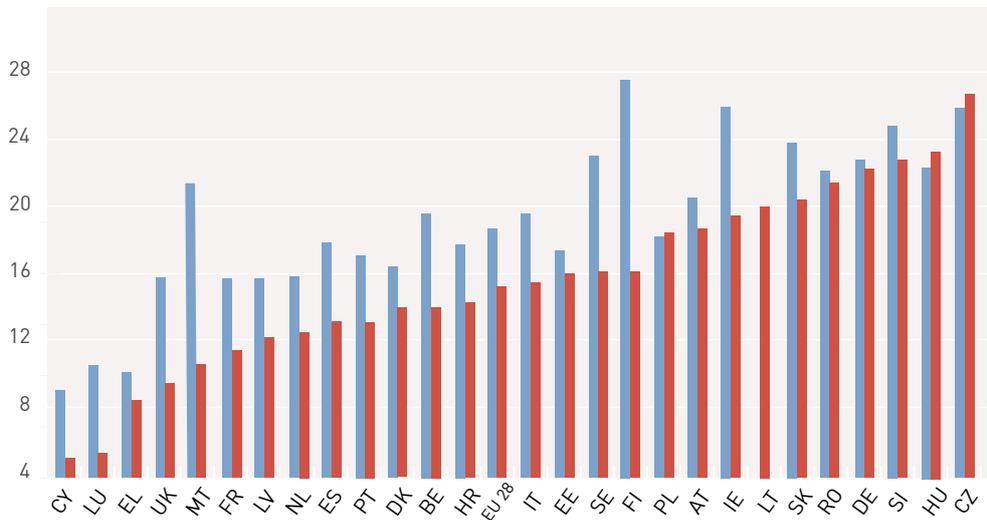
## A less attractive region for investments

Reasons for the shrinking of the EU's manufacturing industries - in terms of global trade as well as its role for member state economies - are manifold. They range from stronger growth rates in East Asia, to an increasing interlinkage of traditional manufacturing sectors and related services in European economies. However, particularly crucial in this respect are the regulatory environment and overall investment conditions.

Compared to other advanced economies, the EU continues to face a more severe lack of investment activity. By contrast, both the United States and Japan in 2016 have regained levels of investments, which are much closer to pre-crisis levels (see chart 7) while countries like China have been investing massively.

<sup>3</sup> Deutsche Bank Research, The industrial sector's share in the EU economy is stabilising, August 2016

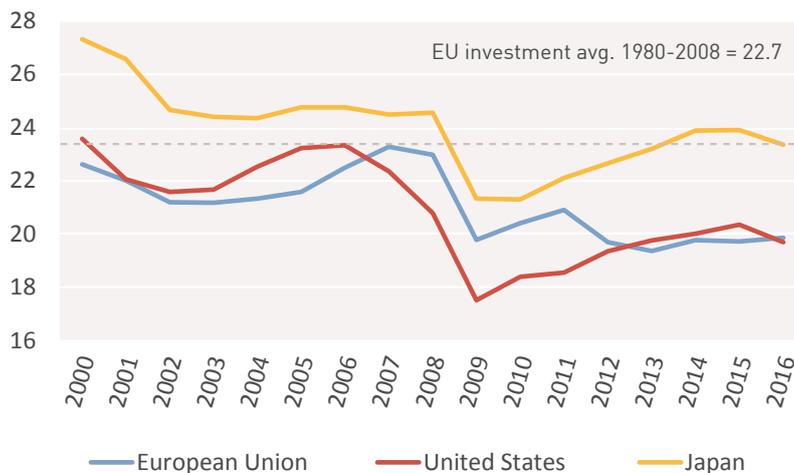
**Chart 6. Manufacturing GVA shares in EU member states in 2000 and 2014 (%)**



Source: European Commission, EU structural change, 2015

While this weakness of investment can be partly explained by the effects of the financial and economic crisis of 2008/09, looking at Europe as a destination of foreign direct investments (FDI), offers further insight. Despite showing the highest share of FDI inflows in the world, the trend for the EU is negative. Between 2000 and 2005 the EU was the recipient of half of global foreign direct investment inflows, but this has fallen to an average of only 30 percent over the last six years. In addition, the North American cluster consisting of the USA, Canada and Mexico is currently receiving the highest levels of manufacturing investment<sup>4</sup>.

**Chart 7. Investment in percentage of GDP**



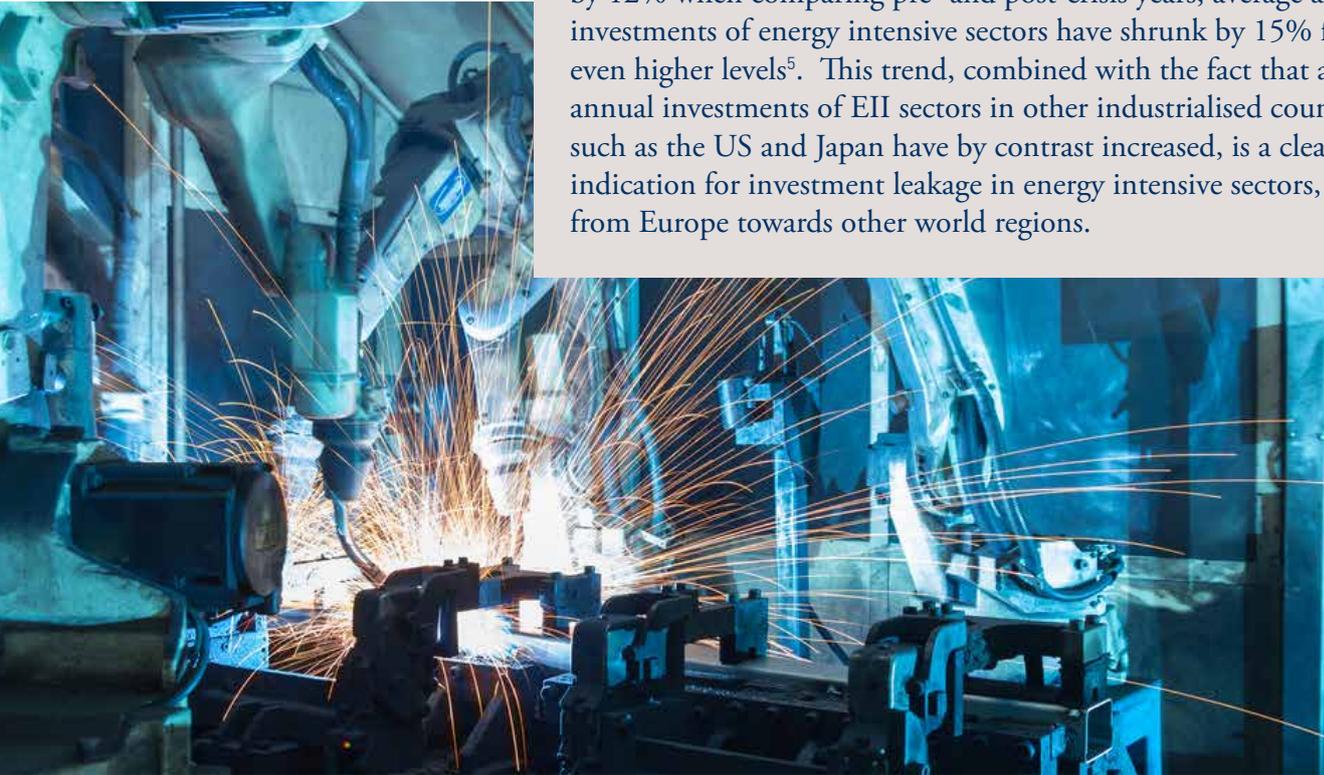
Source: International Monetary Fund, World Economic Database, April 2017

<sup>4</sup> Deloitte, Global Manufacturing Competitiveness Index 2016



### The case of energy-intensive industries

Important for the situation of European industry is the fact that energy intensive industries (EII) and non-energy-intensive industries are affected to a different extent by the current investment gap. While average annual investments of non-EII sectors have declined by 12% when comparing pre- and post-crisis years, average annual investments of energy intensive sectors have shrunk by 15% from even higher levels<sup>5</sup>. This trend, combined with the fact that average annual investments of EII sectors in other industrialised countries such as the US and Japan have by contrast increased, is a clear indication for investment leakage in energy intensive sectors, away from Europe towards other world regions.



### A loss of international competitiveness

The international competitiveness of EU industries is assessed in an increasingly negative way. According to Deloitte's 2016 Global Manufacturing Competitiveness Index - based on surveys among more than 500 global company executives - the number of EU member states, which are among the most competitive manufacturing economies in the world, is declining. While there are five European countries in the global top 15 today, only two of them are expected to defend their top position within the next years. The global competitiveness of European industry is driven by several factors. Some relate to the cost of doing business in the EU (cost-competitiveness) others to factors such as an educated and productive workforce, physical and R&D infrastructure and taxation policy.

<sup>5</sup> European Commission, Member States Competitiveness Report 2014

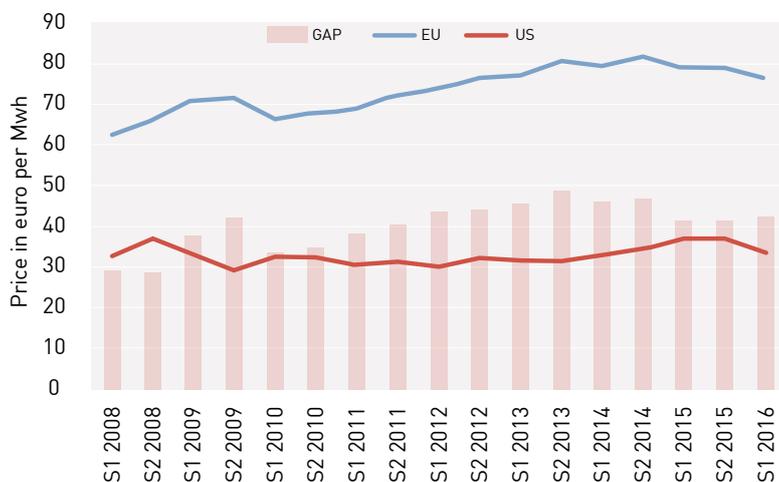
### Energy costs remain uncompetitive in Europe

The cost of energy can be decisive for energy intensive industries, as it can amount up to 40% of total production costs. Despite the fact that the gap of energy cost between the EU and the US has been narrowing since 2013, the energy cost related competitive disadvantage in Europe persists. As shown in chart 8, average energy prices for EU industrial producers in the first semester 2016 were more than twice as high as in the USA.

Concerning drivers of energy costs, natural gas prices are to a large extent subject to currency exchange rates and oil price developments (besides geographical factors such as the availability of interconnections). Positive signs are increased competition on the supply side with a growing global market for liquefied natural gas (LNG). For power prices, however, “political drivers” such as taxes and levies are decisive amounting on average to roughly one third of total electricity prices (see chart 9).



**Chart 8. Average energy prices for industrial producers in the EU and US, 1st semester 2008 to 1st semester 2016**



Source: BusinessEurope calculations based on Eurostat, EIA and ECP



**Chart 9. Components of average EU industrial retail electricity prices**



Source: European Commission, *Energy prices and costs in Europe, 2016*

### Cost-competitiveness remains a weak spot

In addition to energy, there are other relevant factors that affect the cost-competitiveness of EU industry, in particular cumulative regulatory costs, resulting from at times burdensome legislative requirements for European companies. Sector-specific studies commissioned by the European Commission, with the involvement of the relevant sector representatives, show how decisive regulatory costs, resulting from the EU ETS, energy policy and environmental legislation such as REACH, are:

- For the steel industry, the cumulative regulatory costs can amount up to 28-35% of annual earnings before interest, taxes, depreciation and amortisation (EBITDA).
- For the chemical industry, cumulative regulatory costs in the period 2004-2014 amounted at €9.5 billion, which corresponds to 12% of value added or 30 percent of the sector's total profits.
- In forest-based industries (such as pulp & paper and woodworking), cumulative regulatory costs between 2005 and 2014 amounted to costs of up to 16.4% of value added (in the case of packaging).

The high levels of taxation in Europe also impose an important burden in EU industry. The average tax wedge on low income earners is in the EU almost 30% higher than in the US and over 20% higher than in Japan and the overall tax burden in the EU remains 50% higher than in the US and over 20% higher than in Japan (chart 10).

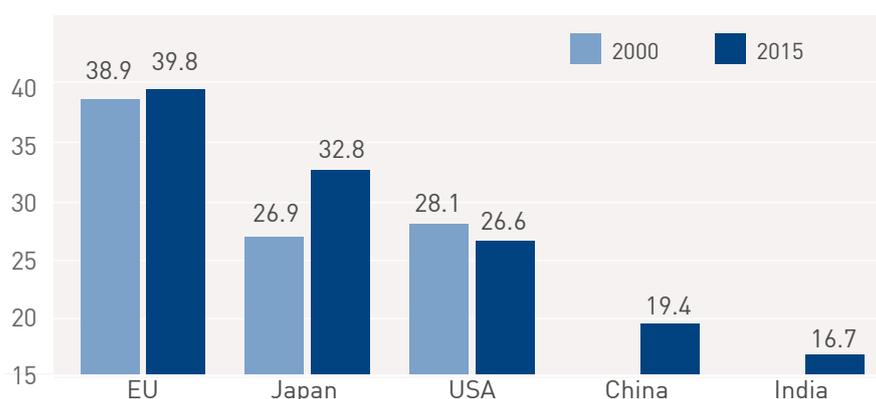
### Other factors of competitiveness must also be improved

Industrial competitiveness is not only about costs. Many opportunities have been identified and should be pursued for the benefit of all Europeans. Europe needs to improve other factors of competitiveness such as its attitude towards innovation, skills, and regulatory burden.

Innovation is important for the invention of products and solutions with higher value added. Unfortunately, too often, the reflex in the EU is to first look at a new technology and solution's risks as opposed to its benefits. This risks-averse attitude is hindering companies' capacity to innovate. Our labour force and the availability of skilled people is another important factor.

### Chart 10. Overall tax burden in the EU is higher than elsewhere

Total tax burden as % of GDP, 2014 (including social security contributions)



Source: AMECO and Heritage Foundation for China and India

Providing industry with the requested pool of skills is a crucial pre-condition for ensuring European industry growth in the medium to long run. However, there are a number of structural social challenges facing Europe's societies, which depress the overall economy.

Employment protection legislation has an important impact on enterprises' hiring decisions. During the crisis, the setting-up or adaptation of short-time working schemes to maintain employment has meant a policy focus on internal flexibility. External flexibility is just as important, in particular when economies start to pick up. The more flexible labour markets are, the quicker companies are to hire. Europe's employment policies should converge towards the same goal of achieving open, mobile and dynamic labour markets, where companies are encouraged to create jobs and people are better off working, in increasingly productive work, whilst being adequately protected when unemployed.

Predictability of the regulatory framework is an important variable when deciding where, how and in what to invest. Regulatory uncertainty is very problematic for business as it increases the risk weight of investment decisions. In recent years, uncertainty regarding the regulatory environment in Europe has increased. This concerns not only the overhaul of financial regulation, but also many other areas such as energy and climate, data protection, and the EU fiscal framework.

Moreover, administrative and regulatory burdens in Europe also put a great load into companies. The annual costs of administrative burdens have been estimated to amount to 3.5% of EU GDP. Meeting over-burdensome compliance requirements diverts management time and resources away from business development and fuels risk aversion. Almost one third of the regulatory burden of EU legislation is caused by the way it is implemented by Member States.

## B. Short-term policy actions

Some initiatives, as outlined below, have been taken by the European Commission since the beginning of its mandate in 2014 and the Competitiveness Council has adjusted its working procedures. While sometimes delivering and producing tangible results, much more can and should be done. This section outlines the short-term actions that need to be taken as regards EU governance, but also in key policy areas with a view to making industry grow in the EU.

### Making EU governance fit-for-purpose

In recent years, the European Union has introduced some important changes in its institutional set-up relevant for industrial policy but many mismatches continue to exist.

In 2014, both the European Commission and the Council of the EU addressed industrial competitiveness concerns and committed themselves to (partly) new working methods. More concretely, the heads of government or state called for “Industrial competitiveness concerns to be systematically mainstreamed across all EU policy areas and be part of impact assessments in view of getting a stronger industrial base for our economy. This should go together with competitiveness proofing.” As a response, the Council of the EU introduced several improvements regarding its working methods in particular through strengthening the Competitiveness Council formation. Ministers for the first time discuss on a regular basis policy files relevant for industrial competitiveness, despite not having direct legal competence over the respective dossiers.

In December 2016, the European Council has reiterated its call upon the Commission to “evaluate the impact of mainstreaming industrial policy into the EU strategic initiatives and to consider concrete actions to strengthen and modernise the industrial base of the Single Market”.





The European Commission's pledge from 2014 for industrial mainstreaming also led to some changes, yet with less tangible results. The Commission did in fact pursue a number of policies relevant for industry (e.g. in the area of trade policy), however its approach at times missed a coordinated strategic approach and evidence for an effective implementation of industrial mainstreaming was weak:

- In general, the European Commission followed an approach, according to which industrial competitiveness concerns presumably were taken into consideration in the course of all its legislative activity. Also, fewer EU legislative proposals were presented and the Commission did revoke legislation for ex-ante improvement (e.g. first circular economy package). Nonetheless, content-wise the tabled proposals were often not in line with industrial competitiveness concerns. Examples where the concept of mainstreaming industrial competitiveness failed are presented at annex.
- Also, while the Commission commissioned sector-specific cumulative cost assessments for energy intensive industries (with involvement of sector representatives) as well as bi-annual energy cost studies, such extremely useful analysis did barely result in concrete policy initiatives.
- Lastly, the Commission established a High-Level Group for Energy Intensive Industries (HLG EII), which in principle could be a useful tool for channelling industry concerns, which however was not utilised in a way to enhance industry concerns within the European Commission, also due to an unclear mandate.

Against this backdrop, BusinessEurope proposes the following concrete adaptations to EU's governance:

- The European Commission shall build upon and truly utilise the High-Level Group Energy Intensive Industries (HLG EII). The HLG EII shall be transformed by receiving a clear objective and a broader mandate for flagging the views of industry towards the Commission well in advance of policy and legislative proposals (concretely towards the Vice-President and Commissioner in charge of competitiveness and industrial policy). This should have the following effects:
  - A strengthened mandate to make the Commission services in charge of industrial policy aware of industry concerns already prior to the tabling of proposals, in order to ensure more effective industrial mainstreaming.
  - A feeding in of industry expertise and concerns into the larger political process, within the Commission services as well as the institutional triangle.
  - A strengthened and broader mandate should enable also a more strategic approach and overview by the Commission over the large array of policy areas (and initiatives) crucial for European industry.



- The Better Regulation agenda of the European Commission must be pursued rigorously, in order to minimise unintended regulatory costs of EU legislation. Not only shall this encompass an ex-ante approach via impact assessments and competitiveness proofing for upcoming proposals, but also ex-post evaluation and adaptation of existing legislation (for instance based on the sector-specific cumulative cost assessments as commissioned by the European Commission). The ex-post evaluation is key to ensure that substantial amendments introduced during the co-decision process are based on strong and verifiable evidence.
- The Council of the EU shall improve its mainstreaming efforts by further scaling up the role of the Competitiveness Council. Ways should be explored for incorporating the views of the Competitiveness Council in legislative dossiers, which are not attributed as direct field of competence of Competitiveness Ministers. While discussions among Competitiveness Ministers are an important step forward, it should be avoided that they result in mere “parallel discussions” with no concrete impact.

## Truly mainstreaming industrial competitiveness

Further actions are urgently needed in a number of policy fields of critical importance for the short-term competitiveness of EU industry. The table below provides a summary of key fields for which BusinessEurope expects further commitments from the European institutions as well as from member states.

<b>Energy</b>	<ul style="list-style-type: none"> <li>→ Accelerate the phase out of subsidies, levies and taxes driving up energy prices for consumers</li> <li>→ Modernise energy infrastructure to establish an integrated energy market with regional cooperation</li> </ul>
<b>Research and innovation</b>	<ul style="list-style-type: none"> <li>→ Ensure an adequate funding in the next Multiannual Financial Framework as research and innovation remain clearly underfunded</li> <li>→ Secure, in preparation of the FP9, the positive approach introduced by Horizon 2020, in particular in balancing EU funding over the whole ecosystem of research and innovation</li> <li>→ Speed up the implementation of the ‘innovation principle’</li> </ul>
<b>Circular economy</b>	<ul style="list-style-type: none"> <li>→ Accelerate good practices sharing and raise awareness in member states</li> </ul>
<b>Digitalisation</b>	<ul style="list-style-type: none"> <li>→ Secure free flow of data and avoid restrictions on where certain types of data can be physically stored</li> <li>→ Ensure the development of national digitalisation platforms and their coordination, through the creation of a European network of digital innovation hubs.</li> <li>→ Avoid pre-empting hypothetical risks of artificial intelligence and focus on opportunities</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>→ Take into account sectors with skills shortages for future skills anticipation blueprints</li> <li>→ Increase the speed at which education and training curricula are adapted to changing skills demands on the labour market, including the role of vocational education and training</li> <li>→ Benchmark skills policies as part of the European semester, with a focus on helping member states learn from each other and design skills policies achieving a better use of available resources to improve learning outcomes, thereby contributing to labour productivity growth.</li> </ul>



<p><b>Finance and investment</b></p>	<ul style="list-style-type: none"> <li>→ Extend the European Fund for Strategic Investments (EFSI) to allow mobilisation of private capital and promote a greater risk culture</li> <li>→ Ensure that all investment-related EU instruments, such as the future research framework programme and EU structural funds, are directed to the real economy and are open for companies of all sizes</li> <li>→ Ensure that prudential rules strike the right balance between increasing financial stability and supporting companies' need for capital for investment</li> </ul>
<p><b>Trade</b></p>	<ul style="list-style-type: none"> <li>→ Conclude an ambitious and comprehensive EU-Japan free trade agreement and overcome critical issues rapidly</li> <li>→ Revise the Commission's trade for all-communication ensuring a swifter adoption of free trade agreements</li> <li>→ Trade defence instruments must comply with WTO rules be effective and workable for the industry and without lowering the level of protection</li> </ul>
<p><b>Competition</b></p>	<ul style="list-style-type: none"> <li>→ Ensure that EU merger rules support innovation and the creation, development and success of innovative companies, for example in the digital and pharma sectors</li> <li>→ Make EU merger control more efficient by introducing procedural simplifications for transactions and by reducing the need for scrutiny and clearance to cases that really matter</li> </ul>



## PART 3: LOOKING FORWARD: LONG-TERM VISION AND HOW TO GET THERE

### A. Creating a vision for Europe's industry

"Predictions are difficult, especially regarding the future."<sup>6</sup> But this does not mean that we should stand still. European economies must prepare to face the profound economic, technological and societal transformations ahead. This is why the European Union must start today to unroll a horizontal framework to help its industrial base to adapt in a fast-changing world. This will be of vital importance to all parts of society, as both companies and workers will need to be ready to face new challenges and learn new skills. To do so, it is crucial that the before-mentioned immediate challenges are addressed in order to successfully bring the EU's industrial base along the broader societal and economic transformation.

A long-term vision for Europe's industry must start by capturing the qualities and diversity of the current industrial base across member states, and seize the opportunities in the macro trends that can be identified already today in the fields of energy, circular economy, digitisation and urbanisation, and understand the changes that these bring along.

Production processes are being optimised, reducing time to market, while becoming more flexible at the same time, with big data and data analytics fuelling the process. Different systems, partners and expertise from different sectors are also coming together in new platforms for cooperation. Human-machine collaboration in hybrid social teams, simplified and smart robots, further automation, will all be part of the reality of tomorrow.



<sup>6</sup> Niels Bohr, Danish physicist, Nobel Prize in physics 1922

The EU must therefore put together a framework that allows industry to adapt to the new realities, creating a level playing field and ensuring that Europe is able to continue in a top position, while ensuring that the benefits of this progress are spread out to the society as a whole.

### Understanding changes from macro trends

A long-term vision for Europe's industry must seize the benefits and market opportunities from macro trends that already lie in front of us. This requires a better understanding of the transformations currently under way and the key challenges ahead.

#### Energy

Profound transformations are going on regarding the energy sector. The electricity production will be more and more based on renewable energy sources. Modernising the energy system requires a cost-efficient deployment of clean energy solutions. Without adaptation to the changing energy value chain, the massive deployment of these technologies may create issues from the perspective of security of supply since the main technologies (i.e. wind and solar) are dependent on the resource availability. More European cooperation will assist to make the transformation of the energy system more robust and competitive. We are also moving into a decentralised system with new stakeholders and products such as storage facilities, and self-consumers that substitute scarce resources by their own production in "active homes". This is leading to the emergence of new business models. At the same time, the majority of industrial activities will continue to be highly intensive in energy mostly in the beginning of the value chains. The added value of industry will continue to be heavily dependent on the capacity of accessing energy at a competitive cost.



## Circular economy

European industry is expected to increasingly base its activities on the circular economy. This will bring important transformation to the life cycle of a product, from the way materials are extracted, to design, services, how we produce, consume and disassemble products, giving a product several more “life’s”. This will require a well-functioning internal market for secondary raw materials, with harmonised European legislation to streamline the general terms and usage of materials across the EU. Developments should lead to an equalisation of the costs and benefits of using primary raw materials, with the disposal of waste in landfills reduced to a minimum.

## Digitalisation

Progress in digital technologies will continue to change the way we design, produce and commercialise products and related services. The combination of advanced sensors and big data in industrial processes will reduce energy consumption and the use of raw materials. Similarly, 3D-printing will shorten transportation routes, IoT and 5G mobile networks will trigger automated driving and efficient manufacturing.

Many tasks that were previously done manually are now automated, including potential benefits in terms of improvements of health and safety at work. Man-machine interaction, or coboting, is now common place. The framework and skills training will be fundamental in defining what tasks are best performed by human beings.

## Education and training

New industrial developments are demanding new technical skills. There will be a number of new jobs and tasks in industry that are not known presently. More engineers will be needed, in particular in fields like robotics, cyber security, software and hardware integration.

The strong presence of technical and practical skills in educational programs will need to be updated and upgraded in order to accommodate contents to the new digital era. Additionally, education and training systems will face the growing challenge of integrating technical, analytical and soft skills training, to promote professionals capable of systemic thinking with an entrepreneurial mindset. Programming and coding skills will be increasingly high in demand in many industrial jobs.

Interaction between educational centres and industrial sectors is a solution that has the potential to improve the match between companies’ skills needs and the outputs



### 3. Looking forward: long-term vision and how to get there

of education and training, where individual motivation will also be critical for workers and jobseekers to invest their time and resources in acquiring new and relevant skills throughout their careers.

#### Urbanisation

Cities generate 85% of global GDP and are home to more than half of the world population, and this trend is expected to increase. With it, several problems will need to be solved, in particular by making cities more efficient and environmentally friendly, where technology will play a key role for building efficiency, efficient infrastructure and water treatment, and smarter mobility.

#### Sustainable transport and mobility

Transport is becoming progressively more sustainable, and this trend will continue. Care is needed when tackling the environmental challenges in the transport sector not to sacrifice efficiency and compromise mobility to the detriment of European competitiveness. EU policies must incentivise the right steps forward to develop a more sustainable and competitive transport system. All modes of transport (road, rail, air, sea and inland waterways) need to contribute to this transition. The right conditions should be created for the market to uptake those innovative technologies and fuels which have the potential for economic and environmental sustainability. Strongly linked to this issue is the further development and take-up of ICT and digital solutions to make transport and logistics smarter, more efficient and less polluting. Triggering strategic investments in key infrastructure and new technologies will be fundamental to achieve this.



### The social dimension of digitisation

There is an obvious technological dimension in the digital revolution, but one should not forget the human and social dimension. The introduction of disruptive technologies and the ever-increasing digital economy, with the diffusion of robots and numerical control machines, brings social and labour market challenges, as well as opportunities. Within Industry 4.0, we should have an increasingly new social infrastructure in the workplace, allowing for a change in the paradigm of interaction between human being and technology.

Machines should be the ones to adapt to the needs of the human being, and there will be more and more “e-learning” in the workplace and at home, following a “work based training” approach, notably through e-apprenticeships, and a continuous professional training and development.

Technological development can result in a decline in jobs in some areas, while creating jobs in others. This is what is already happening with the ever-increasing digital economy and Industry 4.0. Rapid job creation is registered in many new and evolving occupations that are high in demand across sectors of our digitising economies. Moreover, significant shortages and mismatches of skills across Europe are a bottleneck to economic growth in many countries. At the same time, around 10 to 15 percent of current jobs in industry are expected to disappear (most of them in low-skilled roles) in the next 10 years if Europe does not meet the challenge of coming forward with an ambitious industrial policy strategy.

All sectors or professions are affected by digitisation in one way or another. For this reason, we must educate and train young people not for current professions that may disappear, but by providing a range of cross-cutting skills and competences. Modernising engineering education and attracting more young people, in particular young women, in Scientific, Technological, Engineering and Mathematics skills is an important challenge ahead. The goal must be to put in place a strategy that encourages companies to create jobs, and which contains appropriate levels of investment in education and training so as to enhance a person’s employability through the better alignment of skills and competences with the current and future labour market needs of a digital economy.



## B. Building the foundation of this vision

### Europe needs strategic objectives for industry beyond 2020

The long-term fall of manufacturing's share in developed economies globally has been well documented.

On the one hand, relatively strong manufacturing productivity growth has driven down global prices, putting downward pressure both on employment and on the gross value added (GVA) share. On the other hand, global demand for manufactured goods has not received sufficient stimulus from the lower relative prices to maintain GVA and employment shares. The growing role of emerging markets in global manufacturing has also placed competitive pressures on manufacturing in developed economies.

The manufacturing share in gross value added has also been falling in part due to business restructuring, outsourcing of services out of industrial companies and much tighter links between traditional manufacturing firms and key services suppliers such as logistics and transportation, ICT and industrial business services.

In Europe the impact of the great economic and financial crisis on industrial value added has been strongly negative in a number of member states in which a quarter of industrial production was lost. With the gradual recovery of the European economy, the strengthening of demand, the return to more substantial rates of growth in world trade, the pick-up in industrial production and plenty of possibilities of applying new technologies in advanced manufacturing the outlook for industrial activity and value creation in the EU has substantially improved once again.

Reaching the 20% target of industrial value added will remain challenging and only become possible if global and European growth continue to strengthen, European industrial competitiveness on both the cost and innovation fronts keeps improving and the international division of labour keeps providing new opportunities for reshoring industrial activity to the EU.

A much stronger policy approach is required to deliver on all these fronts. The definition of ambitious strategic objectives for industry and linked services for 2030 will help building-up a shared vision.

That approach should focus on improving innovation and cost competitiveness in both manufacturing and related services, as the boundaries become increasingly blurred. A better economic and statistical evaluation of the combined gross-value added of manufacturing and closely linked services sectors would also be warranted.



### Setting-up a dashboard for industry post-2020

This box presents initial considerations on what could form a dashboard of meaningful additional indicators to ensure that Europe is on the right track for a string and modern European industry.

It is necessary to make allowance for new business models and at the same time support manufacturing. Therefore, it might be helpful to supplement the 20% of GDP manufacturing target with a dashboard of additional indicators such as:



#### *Industrial output*

It should be ensured actual output returns to pre-crisis levels. Whilst this recently happened for the overall economy, industrial output was 6% lower in 2015 than it had been in 2007. This should be a minimum target.

#### *Industrial employment*

Also, industrial employment should be increased, and ideally brought back to, and above, its 2007 levels. It is presently 10% lower. A target based around employment has the advantage of focusing on jobs, rather than an abstract figure and would not be dependent upon what happens in the overall economy as is the weakness of the present target.

#### *Joint production*

The increasing interdependencies between the manufacturing and services sectors, highlight the importance of monitoring the size of this

activity and relevance of “joint production”. This combined sector represents 24.3% of value added in Europe in comparison with a world average of 20.8%, and joint production accounts for 8.5% of total value added in Europe in comparison with 3.7% in the world. Indicators could be based around the share of GDP, or the absolute size of output and employment of the combined activity.

#### *Average annual investment of manufacturing sector*

Investment levels must be increased following several years of underinvestment in Europe. The right conditions must be put in place to improve investment in the manufacturing sector. In this regard, the average annual investment of the manufacturing sector as a percentage of GDP could also be foreseen as a possible indicator.



Given the central nature of manufacturing in innovation, productivity, R&D, trade and value-creation in services through increasingly dense backward and forward linkages, an ambitious industrial policy should increasingly reflect the real shift in business practices and their statistical reporting.

### Long-term visionary principles for European industry

The following principles should be considered for the improvement of the overall European industrial climate and in view of building the foundation for the previously outlined vision.

- Innovation, the process whereby new ideas are turned into economic and societal value, is a must for competitiveness, economic growth and job creation in Europe. An open market of ideas, with framework conditions conducive to innovation are essential to enable companies to develop solutions addressing societal challenges. Those framework conditions are manifold, starting from a more risk-taking culture, to the regulatory environment and skilled labour force. Funding, including public spending, plays an important role as well in shaping a pro-innovation ecosystem.
- The core business of industrial production is still heavily impacted by energy prices, environmental legislation and investment leakage in modern European industry. At the same time, the sustainability agenda is also a strong driver of new market opportunities. To ensure strengthened competitiveness in the future, regulatory reforms and awareness must remain a key ingredient in all policy-makers' decisions.
- Manufacturing increasingly depends on being able to buy service inputs, hire professionals and sell service output. EU manufacturing increasingly needs high skilled service professionals (70% of service employees in manufacturing are high skilled), making the free movement of services and persons crucial to both manufacturing and services.



Evidence indicates that service imports, foreign establishment of service providers and openness to trade in services are positively related to improved manufacturing performance. Further liberalisation of trade can therefore be important in reaping the benefits of services and manufacturing.

It is impossible to predict exactly which type of technical expertise will be in demand in the future but general knowledge of STEM (science, technology, engineering, and mathematics) and information and communication technology will be crucial for companies' ability to find qualified employees. Businesses often rank supply and cost of technically skilled employees as the most important factor when it comes to localising their manufacturing. Attracting the right talent by taking care of the EU brand and offering both competitive education and attractive job opportunities will become even more important as the EU's population continues to age.



Efforts that increase the supply of qualified work force, education and increased labour market mobility will be critical. Member States, in line with the diversity of national industrial relations practices, should contribute to life-long learning opportunities by providing the right incentives for career change, re-education and allow for more flexible labour markets. The key challenge is to increase the speed at which education and training curricula and qualifications frameworks are adapted to changing skills demands.

Automatisation and digitisation will bring transformation in terms of content and role of many jobs. Policy makers should refrain from regulating excessively technology and digitalisation, which would undermine job creation. Their support is needed for companies to be encouraged to invest in the great opportunities that a vibrant digitalising economy promises, thereby promoting job creation in new activities, and the effective adaptation of jobs and skills to changing needs.

Global trade remains one of the key drivers of economic growth. Europe is the world's largest exporter of manufactured goods and services. It must continue to defend and promote trade agreements with global partners. As one of the most advanced economies in the world Europe must also be a positive example and address new issues such as trade rules for the digital industry age.

The Multiannual Financial Framework is a tool to express the priorities of the EU and the EU budget and the different policy areas the way to translate these objectives into concrete action. The next MFF must therefore ensure adequate funding for a number of areas of key importance for a competitive industry.

The European Semester remains an important tool to ensure member states take the necessary actions in specific fields in order to address structural bottlenecks and ensure a competitive industry at national level. Country-specific recommendation must cover issues of importance to build a successful European industrial policy, and it is important that the European Semester has an increased focus on the implementation by member states.

## Annex

## EXAMPLES OF EU INITIATIVES WHERE MAINSTREAMING INDUSTRIAL COMPETITIVENESS IS POOR

### Ineffective digital skills and jobs coalition

The European Commission announced the digital skills and jobs coalition as part of the skills agenda in June 2016. First steps focused on creating a new European charter and encouraging stakeholders and companies to sign pledges. These pledges are rather a communication exercise and don't engage employers in national coalitions. Also, these coalitions have a very broad approach and are open to any interested organisation, whereas a more targeted approach can better address specific skills needs. To support industrial competitiveness, the EU should provide a framework for mutual exchange and knowledge sharing. Usefulness of this coalition will depend to a large extent on its capacity to deliver on ambitious and effective digital skills strategies at all appropriate levels, in particular nationally.



### Limiting the access of larger enterprises to EU investment-related instruments such as the H2020 successor programme

Making Europe more innovative and transforming ideas into marketable products are a "must" for Europe to become more competitive. Industries of all sizes have a strong role in bringing innovative products and solutions to the market. The successor of Horizon 2020, the upcoming framework programme for research, technological development and demonstration (FP9) will be a key tool to foster the commercialisation of innovative ideas beyond 2020. The European Commission is considering to reduce the role or even exclude larger enterprises from FP9 participation. Such a limitation would ignore the fact that large companies often act as nodes, involving other companies (suppliers, services, etc.). If all companies larger than SME are not eligible to EU funding, many of those companies, which are more and more global companies, will out-source their research and innovation activities abroad where more favourable conditions exist. Thereby, industrial competitiveness will be negatively affected.



### European accessibility act impacts market entry of innovative products

European businesses offer a wide range of innovative products and services that need to become more competitive. Legislation that addresses best practices in industry can have a substantial influence on manufacturers to design and develop these products and services. With the European accessibility act the European Commission proposed common accessibility requirements for certain key products and services at EU-level. These requirements intend to support the inclusion of people with disabilities. Designated products are for instance electronic equipment and digital products. Manufacturers would need to design a single product for a variety of users with a focus on disabled people even though needs of people with disabilities clearly vary. This obligation may hinder useful and innovative solutions to enter the market and impacts the ability of manufacturers to design a bespoke solution for a specific user.



### Digital policies discourage new business models

Transformation of the European industry will lead to development of new business models and industry services. Many of these new solutions are of a digital nature. Therefore, European companies depend on simple and usable rules with regard to data protection and transfer of (personal) data. The general data protection regulation intends to create a single set of EU harmonised data protection rules. The agreement reached by EU legislators in 2015, however, does not realise this objective. Instead, it causes fragmentation of data protection rules across the single market by leaving much room for national manoeuvre. Also, the recently announced e-privacy proposal that yet has to go through the co-legislative process, negatively affects machine-to-machine communication, which is vital for a successful industry 4.0. Fragmentation will negatively impact Europe's ability to develop new business models. Additional burdens when EU's industrial sector uses data will negatively impact competitiveness.



### Lack of comprehensive assessment of financial legislation

The industry strongly depends on access to financial markets and the ability to find investors. Financial reform measures therefore can strongly affect the industry's ability to invest and thereby improve industrial competitiveness. Before the Commission decides on new prudential rules for banks, the combined effects of existing legislation must be carried out. Existing legislation are for instance: the directive on markets in financial instruments, European market infrastructure regulation, money market funds and alternative investment fund managers. To support economic growth and improve industrial competitiveness, financial legislation must be fit for purpose also in a comprehensive way. Combined effects of financial legislation and the interaction of different rules today are even more important. Hence a piece-meal approach is not the way forward.



### The Union customs code's implementing and delegated acts neglect simplifications for business

Simplification of customs procedures can help improve the competitiveness of industrial companies. Today however, there is still no reasonable way to be active across EU member states without having to work with 28 national customs systems. During the process of drafting and implementing the Union customs code's implementing and delegated acts, the European Commission has removed many simplifications for European business. Simplifications were inter alia: centralised customs clearance, innovative solutions for self-assessment and greater benefits for authorised economic operators. It is important to prioritise the introduction of simplifications so that European companies are not at a competitive disadvantage in an international trading environment. Instead, data requirements have increased the administrative burden on business.



### Emissions Trading System causing investment leakage

The EU emission trading system (EU ETS) needs a genuine reform creating a meaningful carbon price and sufficient carbon leakage measures. The European Commission in July 2015 tabled a legislative proposal to reach the target of at least 43% industrial emission reductions. However, the European Commission impact assessment did not adequately consider the impact on industry. Hence, the proposal failed to support the competitiveness of the most efficient installations in a number of sectors exposed to global competition. The proposal was missing around 1 billion free allowances, risking carbon and investment leakage.



### System of standardisation and certification

Many aspects of industrial operations are subject to requirements laid down in standards, compliance to which must be demonstrated through conformity assessment. There is still too much non-uniformity in many of these requirements and assessment procedures in the EU. European standardisation often moves too slow to keep up with global trends and innovation, with the result that many European standards are lagging. The process of certification is too long. The current European system of notification and conformity assessment is inflexible, time consuming and excessively costly, especially in comparison with the US.



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EU Transparency Register 3978240953-79