

# Ceemet Chief Economists Report 2017



COUNCIL OF EUROPEAN EMPLOYERS OF THE METAL,  
ENGINEERING AND TECHNOLOGY-BASED INDUSTRIES

# Innovation & Skills – Pivotal for the future of MET industry

## Digitalisation & Digital Innovation Hubs

Digitalisation is happening right now and by consequence keeping up the speed of the digital transformation of industry, is one of the priorities for 2017 and the years to come. The investment gap is still a fact and digitalisation requires exactly this: investments. If European industry wants to remain competitive on a global level, focus should be on embracing change and pushing competitiveness.

A complementary approach between all involved levels i.e. EU, member states and regions is necessary, if it wants to support digitalisation. There is one major milestone that would support a competitive digitised European industry: complete the connected Digital Single Market.

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## ***Establish a Chief Digitalisation Officer in schools to match skills and needs for the digital transformation***

However, a diversified approach is required - thus no '1 size fits it all' - as huge differences remain between member states and regions. Companies need creative room to find their strategy to cope with the speed of digitalisation. Connecting Digital Innovation Hubs would increase the regional multiplier effect and boast cross regional the local industry 4.0. An ideal basis for a cross Europe bottom up driven innovation.

## Digital Skills

Education and skills development are a precondition for growth and wealth creation. It can be said that when education fails to keep pace with innovation, workers fall behind and the result is inequality. Inequality is a fertile soil for populism, nationalism and other societal tensions.

The 4<sup>th</sup> Industrial Revolution (4IR) calls for an educational revolution too. The way and the content we teach students needs to be brought up to the standards of the 21<sup>st</sup> century. There is a need for digital leadership with an understanding of how to create business models and processes for a digitised industry. It will take time to close the existing digital skills gap.

We must accept that lifelong learning is the new standard. This is a shared responsibility between government investing in learning tools, employers allowing employees taking the time to update their skills and employees taking personal action for their right-skilling.

From a historical perspective, we can note that an educational system changed fundamentally with every previous industrial revolution. With 4IR at our doorstep, we should aim for the same.



**Diego Andreis**  
President, CEEMET

# Flexibility and Certainty – the roll out the 4<sup>th</sup> Industrial Revolution across Europe

The last decade has been turbulent. Europe's MET<sup>1</sup> industries have weathered the challenges and uncertainties which is a credit to the resilience of the industry and their skilled workforce. But the goal of bringing industry contribution to EU's GDP to 20% by 2020 has lost momentum.

Meanwhile the 4<sup>th</sup> Industrial Revolution is rolling across Europe at full speed, in addition to the challenges from low productivity and underinvestment. The MET industries need the right business environment to ensure that Europe's industrial tissue, that supports societal fabric, remains intact. Especially if we want to be a front runner to capitalize on the opportunities digitalisation offers.

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## ***European companies have no choice but to digitise or to disappear***

We have a fair understanding of its effects on work. I refer to our highly-recognized Digitalisation report<sup>2</sup>. But the way we do business, work and live is challenged. Finding the right answers will only be possible if we think out of the box, allowing room for experimenting in a fit for purpose framework. This is how we protect our future from the

past.

The EU and its Member States should create a competitive business environment to invest more in the uptake of advanced manufacturing, skills and innovation. The skill set for workers and employees -at all levels- are affected and the traditional employer-employee concept is challenged.

We need new approaches for the sustainable financing of social security systems and to be able to maintain a sustainable Social Market Economy. Europe spends over 40% of global social expenditures, while representing only 7% of the world population, with a declining trend.

The completion of a connected Digital Single Market (DSM) is the best incentive for investment. It is a prerequisite for industry to successfully embrace new technologies and continue to be an engine for progress in Europe. The DSM would inevitably encourage the creation of start-ups, that one day will become the -hidden or not- champions, offering solutions to societal, environmental and economic challenges, manufactured in Europe.



**Uwe Combüchen**  
Director General, CEEMET

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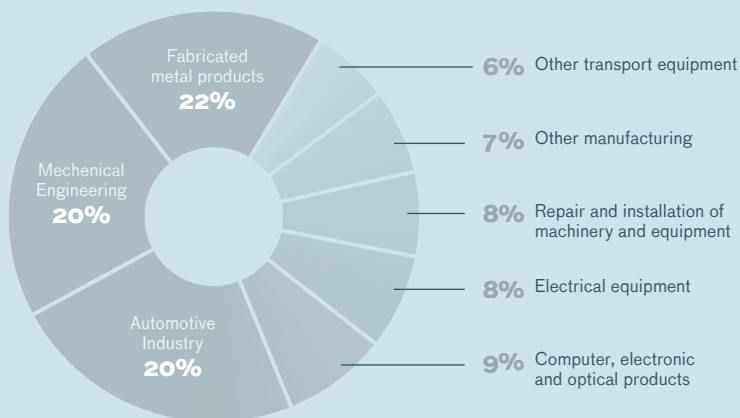
<sup>1</sup> Metal, Engineering and Technology-based industries

<sup>2</sup> CEEMET report: Digitalisation and the World of Work (July 2016)

# Manufacturing



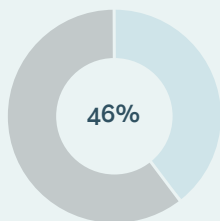
## The Metal, Engineering and Technology-based Industries: Which activities are integrated?



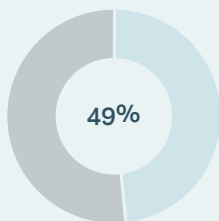
- Most workers in MET industries (Metal, Engineering and Technology-based industries) are employed in the Fabricated Metal Products (3,59 million), followed closely by Mechanical Engineering (3,40 million) and the Automotive industry (3,34 million). These three sectors represent more than 60% of employment in the MET industries.



## Employment in the MET industries



2009



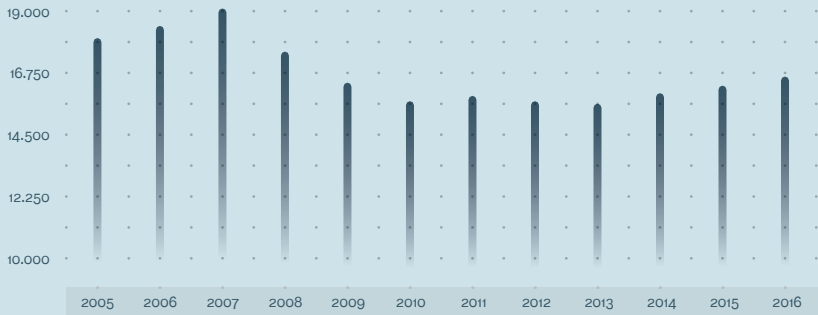
2016

- In total employment in the MET industries equals 16 764 000.
- This means that MET-industries are becoming more and more important in the manufacturing activities of the European Union.

# Employment



## Employment in the MET industries in the European Union (2005-2016)

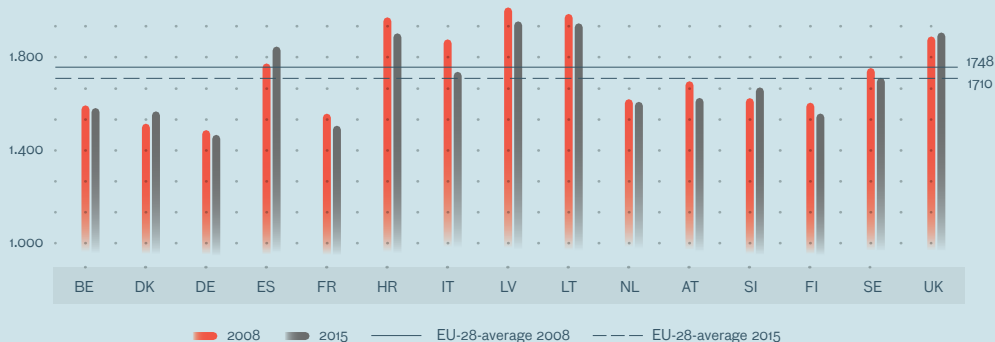


- After having increased employment in the pre-crisis period (2005 – 2007) the European MET industries had to cut a lot of jobs during the financial crisis.
- Despite recent gains in employment, the MET industries have not experienced sufficient growth to return employment to pre-crisis levels.
- Compared to the pre-crisis level of 2008 the MET companies in Europe lost 600,000 jobs between 2008 and 2016.
- Since 2014, there is however again an increase in job creation. The MET industries created 1 million jobs in a period of three years.

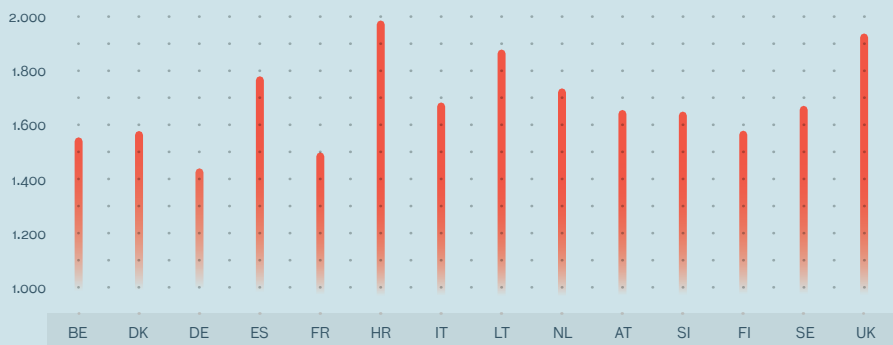
# Working hours



## Hours worked per capita in manufacturing in 15 countries of the European Union (2008-2015)



## Hours worked per capita in the MET industries in 14 countries of the European Union (2014)

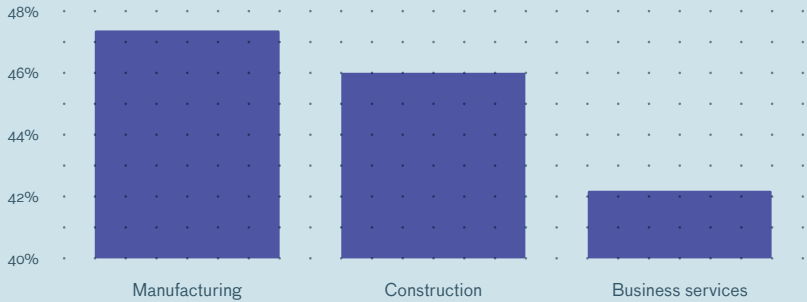


- In most member countries, the annual average hours worked per capita in Manufacturing industry reduced in comparison with pre-crisis period.
- Only Denmark, Spain, Netherlands, Slovenia and United Kingdom recorded an increase.
- In MET industries, the annual average hours worked per capita shows a significant variation between countries.

# Labour cost



Total labor cost of the MET industries in the European Union (2000-2015)



- The hourly labour cost in manufacturing increased by about 48 % between 2000 and 2015 in the Eurozone. This is an average of + 2,6 % per year.
- Until the financial crisis in 2008, wages grew by an average of 3 % per year. Since then, wages have grown more slowly – by an average of 2,2 % per year.
- Nevertheless wages in the MET industries exceed those in the other manufacturing sectors, construction and services.

# Production



## Production of the MET industries in the European Union (2005-2015)



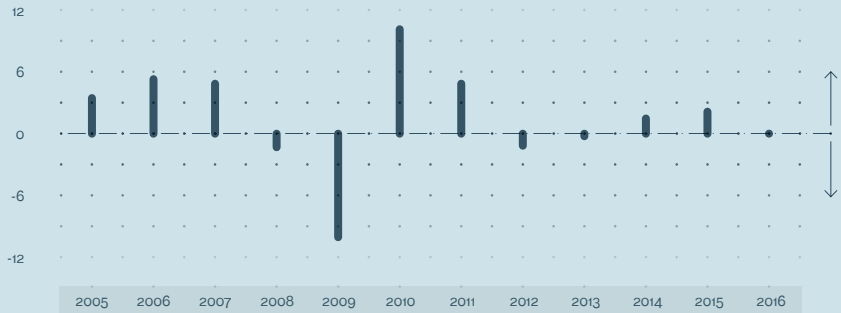
- It took about 6-7 years for European engineering to reach its former level of value production after the financial crisis in 2008.
- However some sectors have not yet reached pre-crisis levels of production from 2007, nor in value nor in volume.
- Hardest hit in terms of volume of production is investment goods, i.e machinery, including electrical machinery - like motors and generators. The value of production in machinery is however slightly higher in 2015 compared to 2007.
- Much of the supply chain into the investment goods sector (Mechanical engineering, Computers & Electronics and Electrical equipment) are companies in the fabricated metal products industry and a large extent of their customers are in investment goods industry (Mechanical engineering, Computers & Electronics and Electrical equipment, etc.). As a consequence, fabricated metal products also show a relatively poor evolution in production volumes.
- Transport equipment has been doing better, first and foremost motor cars, but also in aircraft. This has been driven by a recovery in the past couple of years in sales of passenger cars and heavy trucks within the EU.
- Computers & Electronics has also performed rather well after 2010-2011, even though that sector is a shadow of its former self compared to growth of +55 % for the period 1996-2000. As prices are falling, value of production is lower in 2015 than in 2007.



# Productivity



Changes of productivity in the MET-industries in the European Union (2005-2014)



- In the current decade development of labour productivity in the MET industries is remarkably lower than in the pre-crisis era.
- Although MET companies have reduced employment in the course of the deep crisis 2009, it seems to be not enough to balance weak performing production.
- Higher productivity is essential for the competitiveness of EU's MET industries in global markets.
- In order to enhance productivity growth government and private investments in the EU have to be raised.

# Export



## Exports of the MET industries in the European Union (2002-2015)



- About two thirds of the sales of the MET industries are realized thanks to the exports.
- The exports of MET products increased by approximately 50% over the past decade. This underlines the importance the EU's competitiveness vis-à-vis the other industrial regions and highlights the challenges a new round of protectionist trade measures could create for the MET industries.
- Exports of MET products returned to pre-crisis levels in 2013 and have increased steadily since; this is especially thanks to exports to markets outside EU. Between 2010 and 2012 this was driven by a boost in exports towards Brazil, Russia, India and China.
- Exports to countries outside the EU have become relatively more important over the last 14 years. In 2002, about 32% of the exports went outside the EU. In 2015 this had increased to more than 38%.
- Manufacturing of fabricated metal products, mechanical engineering and the automotive industry are the export heavy weights of the MET industry in Europe.

# Investment



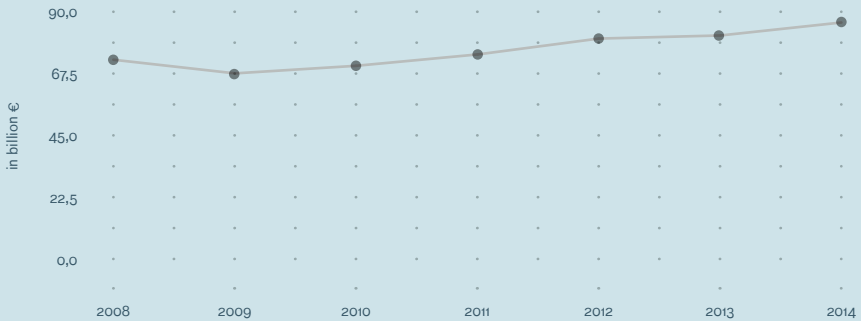
## Gross Investment in tangible goods of the MET industries in the European Union (2006-2015)



- In 2009, the investment of the MET industries decreased dramatically by approximately 20% in the EU.
- In 2010, the investment in tangible goods more or less stabilized and in the following years the investment level increased slowly but steadily.
- In 2015, the investment level of the MET industries was 112,2 billion €, which was higher than in 2008.
- Despite some signs of recovery post-financial crisis, the data points to a sustained period of underinvestment. One can see that the capacity utilization rates are going up, the need for renewal of the machine equipment increases and the necessity for innovation in strategic product portfolios is high. In addition MET companies will be required to make other strategic adjustments to their businesses in order to take advantage of digital transformation and the circular economy, for example. This will mean some industries will see increases in investment levels in the coming years.



## Business Enterprise R&D-expenditure in the MET-industries in the EU-28 (2008-2014)



- The MET industries in the European Union were investing 85 billion € in research and investment in 2014. R&D efforts have never been so high. MET industries are looking for solutions to different societal problems: environmental issues, energy supply, mobility, robotics and securing the food supply chain for example.
- The automotive industry is the largest R&D performer within the MET industries. This sector spent 28,8 billion € in 2014. They are closely followed by the computer, electronics and optics (NACE 26), representing 20,2 billion € R&D expenditure, the machinery and equipment (NACE 28), spending 13,8 billion € and the Other transport equipment (NACE 30) which invested 9,4 billion €.
- Germany is the single most important R&D performer in the European MET industries (39,1 billion €). They are closely followed by France (12,0 billion €), United Kingdom (7,8 billion €) and Italy (6,4 billion €).

# Conclusion



Three years of output growth and creation of 1 million new jobs (2014-2016), but long term progress potentially held back by low levels of investment and a sustained period of weak productivity.

High growth rates from 2005 to 2007 → Very difficult years in 2008 and 2009 → Fast recovery in 2010 and 2011, followed by a stagnation in 2012 and 2013.

- The MET industries have been **slowly recovering** in 2014, 2015 and 2016. During that three year period the output-related economic indicators finally returned to the level they had reached in 2007 and 2008: e.g. production, exports, sales, etc.
- The MET industries **highly depend on exports** and more and more on exports outside EU. Two thirds of the sales figure is realized thanks to exports.
- Although the MET industries **created 1 million new jobs** between 2013 and 2016, the employment in the MET industries was still 600 000 persons lower than in 2008.
- Furthermore, the **investment gap is still there** but has been closing in the last three years. There was a structural underinvestment of the MET-industries (and of most manufacturing industries) in the last decade.
- We observe that the MET industries have changed as a consequence of the different crisis (financial crisis, euro, budget policy restrictions): almost no business cycles since 2013 (but slow growth), almost no price increases, and most of all very low productivity growth (compared to the long run historical average). In 2016 for example, **productivity growth was equal to 0,0%**. The low productivity growth is of course related to the low(er) investment levels since 2008.
- We want to emphasize that the MET industries are a **sector of high-skilled jobs and high wages**.
- The ongoing digitisation of MET industries requires digital skills at all levels. However, there is a **shortage of STEM-workers** (Science, Technology, Engineering and Mathematics). After the much referred to “Digitalisation and the World of Work” report, CEEMET will continue to drive the digitalisation issue.

- CEEMET represents the Metal, Engineering, Technology-based industry **employers** in Europe, covering sectors such as metal goods, mechanical engineering, electronics, ICT, vehicle and transport manufacturing.
- Our member organisations represent **200 000 companies** in Europe, providing over **16 million direct jobs and 35 million indirect jobs.**
- CEEMET is a recognised **European social partner** at the industrial sector level, promoting global competitiveness for European industry through consultation and social dialogue.