

# **European Forum for Manufacturing – European Parliament**

## **September 24<sup>th</sup> 2014**

### **Christian Ehler Member of the European Parliament**

Europe as a global brand stands for progress, innovation and high technology. We want to keep it that way and progress further. We have to because what is at stake for Europe? Our industry accounts for 4/5 of Europe's exports. EU-27 countries (including intra-EU trade); accounted for 37 % of total world exports in 2011; and employs over 30 million people. But our industry is that competitive because it invests a lot of money in Research & Development.

But the overall lead in research and technology is currently under threat. Since 2008, the leading global position in manufacturing investment was seized by China, Taiwan and South Korea

While 130 German companies, with an R&D share of 34% in the EU group, increased R&D by 11.9% and therefore contributed to more than 60% of the R&D growth of the EU companies with Volkswagen being the world's top R&D investor in 2013. Since 2007, every country in Europe, except Germany, lost jobs in the manufacturing sector, totaling a loss of 3,8 million jobs in the industry

Europe must work together to regain its competitiveness and implement innovation strategies. The EU is trying to lead and foster the development of the Innovation Union with Horizon 2020. Many of its essential parts and initiatives circle around improving manufacturing technologies for example Factories of the Future

With Horizon 2020 the EU already has the instruments at hand to induce change. But Member States seem to lack political will power. The European Council plans to reduce the Horizon 2020 funds in 2015 alone by 1,2 Billion €, including allocations for currently running projects

Europe's competitiveness cannot be sustained if this lack of strategic oversight persists and if Member States keep alleged priorities under-funded. In particular, a declining manufacturing share will erode the knowledge and technology base of our whole economy.

If Europe wants to be fit for the future, the Europe 2020-goal of a 20%-share of industry in the GDP will have to be enforced. If this does not happen, Europe will lose its capability to create new jobs in emerging technologies, i.e. around 5 million jobs in the renewables and energy efficiency sector Europe will not be able to tap into the trillion dollar future market of Key Enabling Technologies

We have to set our priorities right. Manufacturing is a priority. Now, European governments have to put their money where their mouth is. Horizon 2020 will play a major and leading role in shaping the agenda of technological development in Europe. It's worth not just every penny – it's worth every penny 10 times. And we

need to work together to get this message to sink into the heads of our Prime Ministers, Presidents and Finance Ministers in Europe.

**Daniel Calleja**

**Director-General Enterprise and Industry DG European Commission**

It is a great pleasure to be here today to talk about our industrial policy.

I have been told that today's meeting is almost exactly five years after the European Forum of Manufacturing was launched with a Roundtable meeting on "Priorities for Manufacturing" with Commissioner Verheugen. Industrial Policy and Manufacturing have since then been in the centre of EU policies and with new Commission structure and political guidelines announced by President Juncker they will be even more so in the coming five years.

### **Introduction**

This is critical time for the future of the EU. Our Union is struggling to overcome the worst economic crisis in its history. Since 2007, the EU industry has lost 3.5 million jobs and the economic situation is only slowly improving. In the second quarter of 2014, industrial production was 1.1% higher than a year before. However, this recovery is weak and hesitant. Industrial production figures for May and June have been disappointing in many Member States. More importantly, European investments are still 14% lower than their pre-crisis level.

**This is just the beginning of the recovery.** We need to ensure this recovery takes stronger hold. **We need a genuine industrial renaissance.**

Globalisation and technological evolution mean we cannot go back to the industry of the pre-crisis world. Instead, investment in industry now needs to prepare for a new generation of smart, connected and sustainable factories.

In my speech I want to show how we can put the European Industry on a new path of growth. My speech will have two parts. First I will first explain that there is growing consensus on the importance of industry. Second, I will then present the Commission's past and future actions in favour of reindustrialization.

## **I. A consensus on the importance of industry**

Let me first recall that **Industry is essential for Europe**. First, because it represents 80% of our exports. The EU has an industrial trade surplus of 365 billion euros per year. That is 1 billion euros per day. Industry also generates a majority of the productivity gains of the economy. Last but not least, it represents 80% of private R&D expenditures, such that the industry of today is the growth of tomorrow.

The importance of Industry has been recognized at the highest political level of the European Union. Let me start by quoting **President-elect Juncker** explained, during his first speech in front of the European Parliament: *"I firmly believe that we need to maintain and reinforce a strong and high-performing industrial base for our internal market, as it would be naïve to believe that growth in Europe could be built on the basis of services alone"*. The President-elect Juncker then expressed his commitment to bringing industry's weight in the EU's GDP back to 20% by 2020.

**The essential role of Industry was also recognized by the Council.** In March 2014, the European Council welcomed the Commission's Communication *"For a European Industrial Renaissance"* and invited the Commission to present a roadmap for taking work forward (to which I will come back later). In June 2014, the European Council conclusions stated again that a competitive industrial base was a priority of the Union for the next five years.

**Finally, the belief that industry is essential to Europe is also shared by the European Parliament.** The study commissioned by the EP on *"How can European industry contribute to growth and foster European competitiveness?"* was presented earlier this month to the ITRE Committee and sparked a vivid debate amongst Members. I believe comments and questions from Member of Parliaments demonstrated a genuine interest for industrial policy. Members of the ITRE Committee seem to agree with the Commission on the problems faced by the European industry, such as access to finance and skills, or the lack of harmonized regulations in Europe.

In sum, I think Europe has succeeded in achieving a very fundamental objective: **changing the mindset of Europeans and European policy makers regarding industry**. This is an important step forward and this provides a very strong political basis for the Commission.

## II. Past and future actions of the Commission

This brings me to the second part of my speech: what has the Commission done for reindustrialization? And more importantly, what is the road ahead for the Commission?

**We are now working on a Roadmap** that the Council asked us to produce. This roadmap will present concrete measure to implement the objectives of the 2014 Communication "*For a European Industrial Renaissance*". The Roadmap should be discussed at the March 2015 European Council, in the context of the mid-term review of the Europe 2020 Strategy.

The Union has a clear and ambitious objective, which, as we have seen before, was endorsed by President-elect Juncker: restoring the contribution of manufacturing to 20% of GDP by 2020.

**To reach this objective, the Commission has been acting on four pillars.** Because, to develop, a company needs four elements: (1) access to inputs; (2) access to market; (3) innovation; (4) and a business-friendly regulatory environment. These 4 pillars also define the structure of the forthcoming roadmap.

### 1) Access to inputs

The first pillar of our action is access to inputs, starting with **access to finance**. We have already completed the design of a new financing instrument for SMEs: the COSME programme will now provide guarantees for loans to SMEs. It should also be mentioned that European Investment Bank financing of Key Enabling Technologies investments increased by 60% in 2013. Finally, the enforcement of the Late Payments directive has been a key instrument to facilitate the flow of cash to SMEs creditors of public administrations. But we must go further. Alternative sources of funding, notably risk capital, must be developed. We are currently working with the European Investment Bank in this direction.

Another essential input for our industry is a **skilled workforce**. We need to prepare our youngster for the future. Much work remains to be done in this area but results are already visible: over 4 million young students will benefit from the Erasmus+ programme, including 650.000 vocational students and apprentices.

We must encourage the development of vocational training systems. The Commission will incentivize the involvement of industry with the use of financing instruments to fund partnerships with firms for vocational training. In addition, we must develop a framework to address and anticipate skill mismatches resulting from

industry restructuring, including screening of mismatches, lifelong learning and retraining of workers.

**Energy** is of course a big concern for our industry and we continue working to achieve an integrated internal market for energy. It is essential to build the required inter-connection infrastructure, as has been done through the Connecting Europe Facility. As for the **access to raw materials**, our trade policy has a key role to play in securing our energy supply. This should go together with an environmental policy that aims at reducing energy consumption and encouraging recycling.

## **2) Access to markets**

Our second pillar of action is access to markets. This starts with **maximizing the potential of the internal market**, which could represent an additional 4% in the EU GDP. This concerns in particular the internal market for services as these are increasingly contributing to industrial competitiveness.

**A special attention should also be given to the Digital Single Market.** A large domestic market is an essential asset for the development of Smart Industry, as can be seen in the US or China. Frictions to the use of cross-border digital services should be removed. This will require efforts to harmonize rules on data protection (in particular for big data), user rights, digital liabilities, and cyber-security. An ambitious agenda for standardisation, based on the review currently underway, is also necessary to limit the potential monopolistic power of any given platforms, while ensuring interoperability and scalability. Standards should especially tackle the issues of user interfaces, protocols and data format.

Improving access to markets also includes **global markets**. The internationalization of European companies must be facilitated. The **Missions for Growth** have been a new tool developed by Vice-President Tajani to spur the development of business relations at grassroots levels. Direct contacts at political and business levels have been held in 22 countries in four continents. Access to global market could also be fostered by the signature of new free trade agreements. Over **12 trade and investment negotiations** are currently underway and in particular, the Transatlantic Trade and Investment Partnership with the USA.

## **3) Smart industry and innovation**

Our third priority is innovation. The EU is betting seriously on innovation because it will be our main source of competitiveness. With the **Horizon 2020 programme**, 80 billion euros will fund European research programme, a 30% increase over the

previous programming period. This is a remarkable financial effort for the EU budget but innovation is the best asset to generate growth and jobs in Europe.

In addition, over 100 billion euros from the **European Structural and Investment Funds** will be available to finance innovative investments. To access this funding, Regions need to adopt a **Smart Specialization** Strategy, which means investing in sectors where they have a true comparative advantage, building on a strong partnership between businesses, public entities and knowledge institutions.

**Talking about innovation necessarily brings me to "Smart Industry"**. This process, sometimes also called "Industry 4.0", represents the fourth industrial revolution. It has been made possible by the gradual adoption of digital technologies in all sectors combined with progress in robotics, sensors and algorithmic software. It is expected to significantly cut cost by reducing inputs consumption (in particular energy), and increase quality through higher customization. It is also expected to improve the ability to forecast incidents and analyse economic trends through the development of data analytics.

**It is a fantastic opportunity to increase the competitiveness and sustainability of the European Economy.** In fact, digital technologies already accounted for more than 20% of GDP growth in developed countries in the past five years. With a lower emphasis on labour costs, this trend can provide opportunities for reshoring.

**The EU and its member states are determined to make the fourth industrial revolution happen.** Several Member States already have national initiatives regarding the use of smart technologies in the manufacturing sector: Finland has a Clean Tech initiative; Germany has an 'Industry 4.0' strategy; the Netherlands have issued a 'Smart Industry' strategy and Belgium has a program called 'Made different' to support innovation in this field.

**The EU also is acting.** As said before, the Digital Single Market must be completed, through a more ambitious harmonization and standardization policy. In addition, two Task Forces, on Advanced Manufacturing and Key Enabling Technologies, have been set up. Parts of the Horizon 2020 programme and European Structural and Investment Funds will be used to accelerate the adoption of smart technologies. Already several public-private-partnerships have a related purpose: Factories of the Future, SPIRE (more targeted at energy efficiency and composed mostly of energy intensive industries), Robotics and Photonics.

#### 4) A business-friendly regulatory environment

The fourth and final pillar of our action is to set up a business-friendly administration, starting with a **radical simplification of the regulatory environment**. The REFIT programme has already reviewed and simplified 80% of regulations concerning the industry. It will be continued. We will also follow up on the Top-10 regulatory burdens, as well as implementing Cumulative Cost Assessments and fitness checks of legislation.

In addition, we intend to improve the **Small Business Act**. We believe that 3 days and 100 euros should be sufficient to create a company anywhere in Europe.

We will also step up our **direct support measures**, such as the Enterprise Europe network, with its over 600 contact point across Europe, and keep up the work on the IPR Helpdesks for SMEs.

Finally, the Commission has taken some **sectoral actions**, because the specificities of certain industries require specific approaches. One good example is the Action Plan for Steel, which set the proper framework for this sector to compete in the global market.

#### **Mainstreaming**

Access to inputs, access to markets, innovation, and smart regulations: these are the four pillars of our actions. But for a good implementation, these four pillars require a **mainstreaming of industrial policy**. This means that the issue of industrial competitiveness must be systematically taken into account across all EU policy areas.

Our efforts to mainstream industrial competitiveness have been applied to many EU policies. I would like to mention here the **Modernisation of the State Aid Frameworks**. In this exercise we have cooperated closely with the services of Vice-President Almunia to offer a more efficient and rational treatment of State aid cases by the Commission. With the new schemes, over 90% of State aids will be liberated from the administrative notification system as they will fall under the General Block Exemption Regulation. New possibilities have been opened for risk finance where more new financial instruments are eligible. Mid-caps will also be eligible under the new framework.

Another classic area for mainstreaming is of course the **interaction with environmental concerns**. Concretely, sustainability and competitiveness can go hand in hand. Sustainability is a promising research agenda with many commercial

applications. But the rules governing actions to reduce carbon emissions must take into account the need by firms to have a predictable regulatory environment with energy they can afford.

Increased attention to competitiveness objectives will also require **governance changes**. Industrial competitiveness will have to be properly incorporated into the Europe 2020 Strategy, which is up for a mid-term review already at next year's Spring European Council. A greater role must be given to the Competitiveness Council to ensure policies are put in places that favour investment. Finally, it is crucial that actors at European, national and regional level coordinate for that goal.

## **Conclusion**

Let me conclude now. We can put the European Industry on a new path of growth. There is growing consensus now that industry is the key driver for recovery. We got a clear message of support from the European Council. We have also had a good co-operation with the European Parliament, and are convinced that this will continue in the future. It is vital to have an active support, so that we can move forward with joined forces.

We have achieved a lot in the last two years. The Commission has been working to reinforce industrial competitiveness, with a firm commitment towards the 20% objective. We will continue on this path, with our Roadmap and concrete measures to foster Europe's reindustrialization.

**Professor Dr. Dieter Wegener Siemens AG**

## **ADVANCED MANUFACTURING / INDUSTRY 4.0 / DIGITAL ENTERPRISE**

- ❖ **First Observation:** The internet is changing social behavior and is accelerating business approaches
  - IoP = Internet-of-People, meaning social networks like Twitter, Facebook, etc.
  - IoT = Internet-of-Things, meaning smart things like SmartPhones, SmartWatches, etc.
  - IoS = Internet-of-Services, Meaning data-driven Internet-Services like Apps or UberTaxi etc.
  
- ❖ **Second Observation:** Industry is once again considered the motor for growth and stability worldwide
  - Germany:



- Manufacturing industries generates 19% of GDP
    - Maintaining leading industrial position with “Industrie 4.0” as a new guiding principle
  - USA:
    - Manufacturing industries generates 12% of GDP
    - Started “Manufacturing Renaissance” with formation of a “National Network for Manufacturing Innovation”
  - China:
    - Manufacturing industries generates 33% of GDP
    - Higher product-quality necessitates automation of manufacturing processes and less people
  - Japan:
    - Manufacturing industries generates 20% of GDP
    - Focus on growing exports with governmental support
- ❖ **Worldwide the manufacturing and production sites are facing three main challenges**
- Raise efficiency, i.e. energy efficiency as well as resource efficiency
  - Reduce time-to-market, i.e. shorter innovation cycles for even more complex products
  - Increase flexibility to enable individualized mass production at high productivity levels
- ❖ **“Industrie 4.0” – a German initiative** with a vision for the “Future Manufacturing” as well as the “Future Production” in 2030
- The “Platform Industrie 4.0” has been founded by the three associations BITKOM, ZVEI and VDMA.
  - The Platform bundles all the interests of the companies of ICT, automation and machine and plant builders to drive the way towards the “Vision 2030”
  - “Industrie 4.0” means in a nutshell to apply technologies from “IoT” and “IoS” into the future manufacturing and production facilities which will be demonstrated by specific use-cases in different industry segments
  - Siemens is an active member of this platform.
- ❖ **Siemens Industry’s approach** for the “Future Manufacturing” as well as the “Future Production” **is the “Digital Enterprise”** which enables our customers to digitalize their value chain by three core elements
- **Production Network:**  
Flexible supply chains with cross-company just-in-time decisions
  - **Product- and Production Design:**  
Reducing time-to-market by the seamless integration of both processes
  - **Cyber-Physical Systems:**  
Flexible and efficient production based on modular, autonomous production units
- ❖ Our **“Digital Enterprise”-Approach** consists of two fully integrated product portfolios:

- The **Siemens PLM-Software-Portfolio**, i.e. SW-tools for all purposes like Design, Simulation, Planning etc. along the Product-Lifecycle from Product Design over Production up to the Service.
- The **Siemens-TIA-Portfolio** (Totally-Integrated-Automation), i.e. Hardware- and Software-Products to automate the manufacturing as well as the production facilities.

## **Torbjörn Holmström, Chief Technical Officer Volvo Group**

Summary of key messages:

### **Introduction**

- The manufacturing industry in the EU employs around 34 million people
- As for the Volvo Group, it is crucial that we can continue to have manufacturing in Europe
- One key factor for success is that we have high-class research and development in Europe that helps us stay competitive
- There are especially three things that I want to point out when it comes to research and manufacturing. And that is that research must help European manufacturing in becoming
  - Better linked to product development
  - More flexible and agile (quicker)
  - More attractive to work in

### **Body**

- **First, manufacturing must be linked to pioneering products**
  - Without competitive products, we won't have any manufacturing
  - In industry we need even tighter links between product development and manufacturing
  - In addition, R&D becomes a lot more efficient if it can be carried out close to manufacturing facilities
  - Public policy must support knowledge creation that will lead to high-tech products produced in world class plants
- **Second, we need to become more flexible and quicker**
  - **We need to become more flexible to short-term changes in volume**
  - The Global economy has undergone a volatile period – manufacturing volumes vary a lot from time to time
  - Events like the EU sanctions against Russia over Ukraine cause unexpected and serious disruptions
  - We cannot plan for everything – European manufacturing plants need to become more flexible to rapid changes in demand and research must provide us with the tools for this
  - **We also need quicker implementation of new technologies and methods**
  - The Industry 4.0 concept, digitalization, automation etc. provide opportunities that have never existed before

- But in order to take lead we must also be in the forefront of implementation
  - We know, for instance, that the USA has a history of being the leader when it comes to applying new business models as well as new disruptive technologies
  - This time Europe must act rapidly and grasp new business opportunities related to advanced manufacturing
- **Finally, we need to attract the best coworkers**
    - Today's advanced manufacturing of high-tech products is a knowledge-intensive industry
    - We need highly educated coworkers
    - We also need to deal with issues such as
      - an aging and diversified workforce
      - workspace sharing between human and robots

### **Conclusion**

- There is for sure a future for European manufacturing industry but we need to work hard and smart to stay in the lead
- Europe needs manufacturing to stay competitive on the global market
- Manufacturing in Europe for the European market has the advantage that it reduces the need for transport and the corresponding CO2 emissions
- Research must help European industry to become even more agile, flexible and attractive
- In short: We need more research and more results that are suitable for rapid implementation on the shop floor

### **Max Lemke**

#### **Head of Unit DG Connect European Commission**

Responsible for R&I on Embedded ICT, ICT for Manufacturing in CNECT – co-responsible for the PPP FoF and the Joint Undertaking ECSEL.

#### **Position Statement**

Europe's industrial renaissance is digital – or it will not happen! Europe's competitive position across all major economic sectors depends on our capacity to innovate both processes and products through the latest advances in ICT. European industry has a good starting position being leader in manufacturing systems, automation, digital design. Europe also needs to become the world leader in manufacturing innovation through ICT: The industrial ICT platforms of the tomorrow must build on European technologies and must be led by EU actors rather than leaving the field to the large non-EU ICT actors alone. Europe is on the right track, examples:

KNOW4CAR with Volvo: restructuring of the supply and logistics chain

ADIDAS: re-shoring based on digital design and 3D printing

#### **How do we make this happen?**

## 1. Work in partnership addressing the complete value and innovation chain

50% of taxpayers money in the LEIT-ICT programme is contributed to PPPs between industry and the EU, and in a special case of ECSEL JU between industry, EU and MSs. Factories of the Future is one of them, with proven success in FP7: 700M€ in FP7, 1.1 B€ in H2020, 50% participation is from industry. Industry and SME both on user and on supply side are key players. Example of an innovation initiative supported by the R&I programmes: I4MS – ICT Innovation for Manufacturing SMEs (I4MS.eu):

## 2. Combine policies to achieve the goals

DGs of the Commission are working together and combine research and innovation policy with other policies like innovation, industrial, education/skills, structural funds, ... . Example 1: we, CNECT, work together on a digital industrial strategy with our colleagues in DG ENTR, responsible for industrial policy, e.g. Recent public hearing on these issues organised by DG ENTR with representatives from MS ministries and initiatives; on Monday 29 September, the Digital Action Day organised by CNECT with a session on the digital industrial strategy.

Later this year, we plan to bring together all major EU innovation initiatives together in the context of digitalisation of industry, like Industrie 4.0, Smart Industry, Usine du Future, High value manufacturing, just to name some of them, in order to explore synergies, need for alignment, and common actions.

Example 2: We have started pioneering how to pool resources on highly strategic issues – and the digitalisation of manufacturing and the economy is one of them. The first steps are currently taken to complement EU R&I funding by structural funds. In the Smart specialisation strategy of our regions large amounts of budgets are foreseen to support innovation and also ICT adoption. In several of our initiatives we are currently exploring with our constituencies how to strategically pool resources across Europe to integrate our regional ecosystems with EU-wide initiatives and thereby stimulate innovation through ICT in the regions.

### **Anneliese Dodds Member of the European Parliament**

Thank you very much for the opportunity to address you on the topic of the importance of manufacturing for jobs and growth in Europe.

Manufacturing is key to our economic future in the EU. While the services economy has come to dominate in many regions and areas, even in my own region, the South East of England, with its strength in financial services, manufacturing still plays an essential role.

Indeed manufacturing is essential even for the future of this planet, since it will produce the new technologies and products that will enable us, I hope, to maintain our current living standards in Europe whilst tackling climate change and reducing pollution.

The recent financial crisis obviously harmed manufacturers, sometimes more than other elements of the economy. Thankfully, growth now appears to be returning, at least in my own country, fuelled by cooling global commodity prices and slowly increasing consumer demand. But in Europe we face many challenges when it comes to the promotion of manufacturing.

The first is access to credit and investment. We must do all we can to stimulate investment in productive economic activities- not least manufacturing- from the banks but also from non-bank sources, including governmental support where appropriate. It should not be forgotten that many of the real technological breakthroughs of the last century were supported by government, from the internet to GPS, and this may well be the case into the next century as well.

Furthermore, while some nations of the EU may have good mechanisms for promoting long-term investment, that is not the case in my own nation- and I hope that will change in the future.

We also need to promote connections between science and manufacturing. In this regard, I am particularly proud of the strong and virtuous links between universities, research institutes and manufacturers in my own region, the South East of England. One example is provided by the Culham Centre for Fusion Energy, the only place in the world where nuclear fusion has ever occurred and a real hub for spin-offs which are adding substantial value to the local economy.

We need to protect the proportion of the EU budget allocated to research funding, and recognise that research funding is productive, and has strong links to the real economy, particularly manufacturing.

We also need to be alert to the unintended consequences of other EU policies for our research and concomitant manufacturing strength. One example is provided by the current debate around data protection, where measures designed to protect individuals from snooping by spies look set to prevent technological innovations like the use of driver data in smart cars and the development of personalised medicine.

Third, we need to improve our population's skill set in relation to manufacturing. A lack of appropriately skilled workers is one of the most frequently mentioned problems by small and medium-sized manufacturers in particular, as well as by IT and construction companies.

Of course, much of this can be done by national governments, when it comes to schooling, further education, on-the-job training and apprenticeships. There is EU support for apprenticeships, but I would like to see this become a more important element of the EU agenda. In countries like my own, mobility is a distant dream- if it is even contemplated- for the vast majority of young people, with only a small subset of young people taking part in schemes like Erasmus. The autonomy, creativity and skills developed by young people being involved in manufacturing in another country and then coming back home for the rest of their career cannot be underestimated.

In addition, trade unions have a huge amount to offer in encouraging the development of workforce skills and productivity, something I have seen occur just five minutes from my home, in the Oxford BMW factory which produces every Mini car in the world.

Finally, we need to think about encouraging new people into manufacturing. That includes more women in manufacturing, and looking outside the box for workforce

development. One great example which I visited in my region is the 'Able and Willing' facility in Brighton. There, people with a range of disabilities are supported in work making signs and other promotional materials, gaining valuable experience and delivering good value and an excellent product to their clients.

To conclude, manufacturing needs an active industrial policy across Europe, focused on greening our economy and with a long-term perspective to build the skilled workforce that we need.

### **Speech of Juliane Hübner, Robert Bosch GmbH – summary**

- To counter the fear of de-industrialization in Europe, the topic of industrial policy has reemerged over the last few years and the European Commission has proposed the goal of raising the Union's industrial quota towards 20 percent of GDP.
- Bosch is strongly supportive of these efforts of not only safeguarding Europe's industrial tissue and competitiveness, but of keeping Europe on the very forefront of development in advanced manufacturing.
- Europe remains the most important market for Bosch in terms of sales, employees and number of manufacturing sites:
  - In 2013, 55% of our sales revenue was generated in Europe
  - Out of 281.000 associates globally, 174.000 work in Europe
  - Of our 225 manufacturing sites worldwide, 140 are located in Europe
- For Bosch, connectivity in all its forms, including the digitalization of manufacturing, is the number-one economic trend of our time.
- To foster connected industry, Bosch follows a dual strategy:
- **As a lead operator** Bosch manufactures a broad range of highly complex products that require the latest in production technology; from automotive components to household appliances, power tools, and much more.
- Here, Bosch already today benefits from connected applications: The introduction of RFID in one of the Bosch production sites in Homburg/Germany lead to an increase of productivity by 10 per cent and a reduction of stock by 30 per cent.
- **As a lead provider** Bosch develops state-of-art industrial production technology for its customers.
- In our production systems as well as for customers Bosch aims at an ever increasing degree of modularity and connection and thus the ability to manage high variances. With Open Core Engineering, for example, Bosch Rexroth opens the controls up right down to their core. This enables the independent creation of customized functions supported by the existing firmware of customers and thus revolutionizes the machine development. The integration of individual, realtime-capable applications directly into the control or the individual IT applications on external devices enables definitive

competitive advantages.

- Bosch subsidiary Bosch Software Innovations improves maintenance processes with the so-called predictive maintenance: machine condition data is analyzed constantly on any irregularities. The results feed into an automatic process that initiates corrective measures. Thus, the planning and introduction of corrective measures can be initiated effectively, which avoids downtime, increases productivity and helps conserve resources.
- To further foster innovation, research, development and quick demonstration are of utmost importance. With the EU Framework Programme for Research and Innovation, Horizon 2020, the EU provides industry with a very useful instrument which should not be cut in upcoming budget negotiations.