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ORGALIME Statement for the Commission's Task Force on Markets for Advanced Manufacturing

Introduction

Orgalime strongly welcomes the initiative of DG Enterprise and Industry to create a task force to see how, in practical terms, to follow up on the proposals included in the Communication “A stronger European Industry for growth and economic recovery” which we believe provides the foundations for a progressive shift towards a European framework which is manufacturing friendly and which will lead to more manufacturing investment in the EU and more jobs.

While we can understand the imperatives driving the Commission to seek short term progress for reaching this goal, we believe, that, with the levers in the Commission’s hands, visible short term outcomes may be hard to deliver. Nevertheless, in the present paper we suggest short term actions which will begin to redress the balance towards a fully sustainable approach to manufacturing in Europe where the economic pillar has been neglected for many years.

Our industry – the engineering industry which covers the whole area of manufacturing technologies fully supports the Commission’s drive to fully unleash the potential of Europe’s advanced manufacturing technologies.

This is the right time to do so:

- Our industry is a technological champion and, as the enabling industry, provides the essential goods and services to all other sectors of the economy. It is also therefore the key driver for the green and low carbon economy through the products, systems and technologies our companies produce.
- Our industry is moving very fast towards what we see as the fourth industrial revolution which will provide the jump toward mass customisation, also thereby enabling industry to answer societal challenges with tailor made solutions¹. Our industry is Europe’s major employer and a driver of growth: although production volumes stagnated in 2012, for the

¹ The four industrial revolutions

- First industrial revolution (end of the 18th century): introduction of mechanical manufacturing systems
- Second industrial revolution (beginning of the 20th century): Mass production incorporating division of labour and with the help of electrical energy
- Third industrial revolution (since the mid-1970s): Automation of production processes with the help of electronics and information technologies
- Fourth industrial revolution: Integrating Internet technologies into production processes and networking those processes

Orgalime, the European Engineering Industries Association, speaks for 38 trade federations representing some 130,000 companies in the mechanical, electrical, electronic, metalworking & metal articles industries of 23 European countries. The industry employs some 10.3 million people in the EU and in 2012 accounted for some €1,840 billion of annual output. The industry not only represents some 28% of the output of manufactured products but also a third of the manufactured exports of the European Union.

first time since recovery from the 2008 economic crisis, output of the industry stood at 1840 billion euro and employment in fact rose by half a percentage point to 10.3 million.

Advanced manufacturing technologies, which act as an integrator of products and components from their complex value chains with internet technologies are major potentiators and will therefore play an essential role in uplifting our economy to emerge from today's crisis with a stronger and greener industry with thousands of newly created jobs.

In the present document we focus on two areas dealt with in the Commission's hearing of 19 March:

- Advanced manufacturing technologies: better products and better production methods
- Technologies funded by „Factories for the Future” and the 6th Framework Programme that are now market ready

The third area – skills - is no less important to companies but is dealt with by our sister employers' association CEEMET.

Advanced manufacturing technologies: better products and better production technologies

The companies in our industry are key drivers of innovation. Besides creating new products, advanced manufacturing often leads to new ways of production. These new production methods are usually more environment friendly and aim to make available ever more environmentally progressive goods and systems which are at the same time both more productive and affordable for customers.

Example: advanced aluminium-lithium alloys and composite materials can reduce the weight of airplanes by more than a third. This leads to lower fuel consumption, longer range and cheaper air travel. However, due to the high costs of production, the usage of such materials was largely limited to military aviation for the last 50 years, whereas passenger airplanes continued to be built primarily from aluminium. Finally, in this decade, it was possible to reduce the costs of production of these materials by such an extent that they can now be used at a large scale in the latest generation of passenger airplanes. The new Airbus A350 XWB airframe will be 53% composites and 19% aluminium alloys, mostly aluminium-lithium.

We could however do even better: Europe has reached a high level of research and research results. In 2012, there were more than 250,000 patent filings in Europe.²

However, the path from research to innovative products requires more than knowledge and research competence. Much of Europe's research leads into innovations which are developed outside Europe. In our view, this is due to the fact that Europe as a place is not as attractive as it should be to bring such innovations to the market.

How should this be achieved and how can the Commission help to further improve the situation?

- At the level of research:

In order to improve the industrial uptake of new scientific findings, research and innovation funding should be better targeted towards industrial needs and be carried out as a Public Private Partnership, such as the “Factories of the Future” programme. In the recent past, Europe had for a long time a clear scientific advantage in many technologies, but in the end the industries profiting from this research settled outside Europe. Such weak industrial exploitation of existing knowledge in Europe can only be overcome by industry participation in research programmes at an early stage and an appropriate framework that allows them to exploit the gained knowledge timely. The modern factories resulting from the fourth industrial revolution must be built in Europe.

² <http://www.epo.org/news-issues/news/2013/20130306.html>

In order to boost participation of companies, especially SMEs, the guidelines and provisions for participation and approval of projects should become shorter and simpler.

We provide examples of successful publicly co-funded projects hereafter.

Short term actions proposed:

- keep the focus on production technologies as an area of excellence using the now proven PPP contract model.
- Simplify rules for participation in PPPs, approval of projects and audit.
- Make sure that projects selected are market oriented.

- At the level of market

Innovations need a market: While there has always been a focus on the regulatory level, in particular through the Eco Design Directive, to push manufacturers to produce ever more efficient products throughout the life cycle of the products, relatively little efforts have been made to support the development of the markets for these products.

Whereas the Commission has been active on the Eco Design, Energy Efficiency and Energy Performance of Buildings Directives, an efficient application of the necessary tools in member states, has not occurred, yet.

An example, where products are market ready but introduction is hampered, are smart meters: As there is no European consensus on the issues of data security and privacy rules, now, every member state or region is developing their own minimum requirements and rules on these and on interoperability. As these problems remain unsolved in many member states, a successful, EU-wide roll-out of smart meters has not yet taken place.

Actions proposed: when a provision on European level is drafted, concrete implementation measures and their feasibility should be a top priority from the beginning. Implementation should be consistent, simple and fast.

- At the level of financing

Today, many investments in energy and resource efficiency are not conducted even though these investments would make sense and break-even would be usually reached within 3 to 5 years. The reason for this paradox is that companies usually have limited financial resources and must invest those resources in production and development that generate immediate revenue.

We think that this dilemma could be overcome if the future gains from such investments would create a cash flow already at the time when the investment must be made. For this purpose, we suggest establishing a fund at the EIB that provides credits to companies for such investments in exchange for the profits generated by the resulting saving until the credit is paid back. Contrary to other efforts to foster investment in energy efficiency, this model makes such investments possible without any public subsidies.

- At the level of the regulatory framework in the EU

In many fields companies complain about the massive weight of the provisions they must follow. Especially SMEs are no longer able to cope with these. Indeed, the main task for engineering companies should be to find technological solutions and not to spend a considerable part of their resources only to deal with the latest regulations, directives and national laws. Unfortunately, impact assessments of the Commission do not yet sufficiently include these costs and in particular

do not include the cumulative impact of the multiple layers of regulation companies have to deal with.

The solution for this problem is to reduce the amount of new legislation. Companies can only invest if they are allowed to develop and market products. It has unfortunately become a standard to make a review of legislation at least every five years. Similarly, often, regulators try to overcome inappropriate or insufficient execution of existing rules by producing new legislation. This creates new burdens for those who follow rules, while the problems persist. Most of the time, better application of existing rules would solve the problem better

Additionally, in recent years, there has been a tendency to overload legislations with additional but inappropriate provisions. A good example for that is the current discussion on introducing extraneous aspects, such as corporate social responsibility or environmental considerations in public procurement. The main target of public procurement is to save taxpayer's money and get best value for public money. The complexity and bureaucracy of such over loaded legislation makes it nearly impossible for SMEs to participate in public tenders. Finally, even though legislation and standardization on European level has facilitated trade within the EU, the exchange of many goods is still hampered by national laws. Sometimes, this arises from different transposition of EU legislation into national law to which member states add "extras" (gold plating).

We list hereafter some specific examples where the action levers are essentially in the hands of the European Commission at the stage of development and also both at the level of the Commission and of member states for implementation:

- *REACH review: we thank the Commission for deciding as a result of the review process to focus on implementation, rather than deciding to revise the regulation. Now we ask the Commission to seek to simplify the implementation process as we have suggested in our position paper "Ensuring a truly complementary, coherent and consistent implementation of REACH and RoHS2" issued on 8 March. Our position of 20 March on the Commission's General Report on Reach also focuses on a more balanced approach to risk management procedures.*
- *Eco design Directive: Orgalime's industries have been regulated at the level of eco design by this directive where so far 41 implementing measures have been adopted or are in the process of being adopted after 7 years in operation. We support the holistic approach of the Eco Design Directive: it establishes a framework for setting eco design requirements throughout the whole life cycle, addressing all life cycle stages and all environmental aspects and thereby ensures constant environmental improvement in a coherent framework. Initially the Commission's focus was on energy, while now it is shifting more to resource efficiency in general. The existing framework and robust methodology used (MEErP) for analysis are progressively being undermined by a methodology developed by the JRC which ignores the present methodology and its balanced approach through introducing an environmental bias. Moreover the process for implementing this change is lacking in transparency. It is regrettable therefore that the lead sector at the level of eco design should have to face a changing framework which provides no security for the investments already made to improve the environmental profile of products.*
- *The Commission should also focus on maintaining an overall coherent framework for legislation regulating products: the European system of product legislation, based on the New Approach and now NLF has served our industry well. This is one of the major successes of the EU institutions. The European system for product legislation is based on public order legislation which is favourable as the directives under the NLF tend to be fairly stable over the longer term, while providing an equivalent level of safety. Contrarily, the approach more widely used in the US is based on civil liability and notably rests upon product liability, compounded with collective redress (class action) and contingency lawyers. The American approach has not only discouraged investment in manufacturing but, according to a recent MEDEF study costs 1.5% of the US GDP per year. It would therefore be wholly inappropriate for the Commission to move in this direction, which however is seriously being considered. This would be a flagrant*

example of overregulation which would take no account of the cumulative impact of different measures.

- *Finally, we also refer to our input on the consultation “What are the TOP 10 most burdensome acts for SMEs?”*

Short term actions proposed:

- Care for an efficient and consistent market surveillance in Europe.
- Try to implement existing rules better. Only if that does not help, should new rules be an option.
- If new legislation is needed then it should be holistic, technology-neutral, with simple requirements and minimum extra administration.
- Reviews should not always result in new legislation and the scope of recasts proposed by the Commission should be enforced.
- No additional methodology is needed or wanted for the Eco Design Directive.

Technologies funded by „Factories for the Future” that are now market ready

The “Factories for the Future Initiative” has been largely welcomed by our industry. It has acted as a stimulus to once again attract industry and particularly SMEs to Commission funded R&D projects. At the last call industry participation rose to over 50%, for the first time in many years of funding in the area of production technologies.

Now the issue is to get the results into the market: although this inevitably takes time, there are already several examples of projects which are now on the way to achieving this. These collaborative projects have a special emphasis on demonstration activities, in order to prove the industrial viability of new technologies that have clear economic potential or societal advantages. Projects should focus on both research and demonstration activities, with a clear connection between them:

1. *The AMAZE Project - Additive Manufacturing Aiming Towards Zero Waste & Efficient Production of High-Tech Metal Products – Factories of the Future PPP*

The Factories for the Future project ‘AMAZE’ has been launched in 2012. The project belongs to a first batch of projects that are set-up according to the ‘DEMO-Targeted’ instrument under the FoF PPP.

The overarching goal of AMAZE is to rapidly produce large defect-free additively-manufactured (AM) metallic components up to 2 metres in size, ideally with close to zero waste, for use in the following high-tech sectors namely: aeronautics, space, automotive, nuclear fusion and tooling. Four pilot-scale industrial AM factories will be established and enhanced, thereby giving EU manufacturers and end-users a world-dominant position with respect to AM production of high-value metallic parts, by 2016.

2. *The FLEX-O-FAB project: Pilot-scale hybrid roll to roll/sheet to sheet manufacturing chain for flexible OLEDs - Factories of the Future PPP*

The overall objective of the Flex-o-Fab project is the demonstration of a reliable manufacturing process for OLED lighting foils enabling market introduction within 3 years after the end of the project. Flex-o-Fab will take existing technologies in use for the manufacturing of glass based bottom emissive small molecule OLEDs and use these as a basis to develop a pilot series manufacturing process for flexible OLEDs.

By doing so, the project will be allowed to focus on the roadblocks and bridge the gap between sheet-to-sheet (S2S) produced glass OLEDs and the future envisioned complete R2R lighting foils.

The European Engineering Industries Association

Flex-o-Fab will strengthen and expand the leading position of the European lighting industry by making the shift from lab to fab and make flexible OLED devices an industrial reality.

Technologies funded by the FP 6 (6th Framework Programme funded European Research and Technological Development from 2002 until 2006) that are now market ready

The best way to ensure that research findings are applied in production and therefore create new jobs and wealth is to involve companies at an early stage in research, innovation and technical development. This principle, which was successfully applied in the “Factories for the Future” program, allows to direct research in a way, that the results are economically usable and the preparations on the market are done to ensure a successful market uptake. Public Private Partnerships in research are the best way to bring together scientific excellence and the knowledge about what are the market demands. This ensures that in the future, Europe will finally succeed in transforming scientific excellence into jobs and revenues.

Example: one successful product paving the way for advanced manufacturing and developed by an SME under the FP 6 is the “MyCar project”:

During the “MyCar project” several different exploitable results were delivered. One of those was the “Information System for Human-Centred Assembly”. Its task is to provide assembly instructions to assembly workers on mobile clients utilizing wireless technologies for calculating the position of the devices as well as transferring the correct instructions. The system was also supported by radio-frequency ID technologies to identify the unique product at the station. Each station has four operators working simultaneously on the product and their information systems interact.

During the project, this concept was tested and demonstrated at a truck assembly plant in Gothenburg, Sweden. At the end of the project, this system was further enhanced and been put in regular use in one of the engine assembly shops.

Conclusions

The current crisis shows us that we need strong, internationally competitive companies. If the EU wants to maintain its position as one of the world’s leading economic blocks, it must provide the right framework conditions capable of attracting companies to invest in Europe.

Legislation on European level must let producers to be innovative but also be able to get revenue for their investments. At the same time, producers must be able to concentrate their resources on product innovation, rather than dealing with new legislation.

We firmly believe that our industry can deliver and will be at the root of Europe’s manufacturing success.

Interesting links:

Industry 4.0 film: <http://www.vdma-webbox.tv/english/filmdatabase/industry-4-0-the-technological-revolution-continues.html>

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