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Swedish industry view for the Horizon 2020

The Association of Swedish Engineering Industries would like to put forward its views on the Commission's proposal for the Horizon 2020 and strategy for research and innovation in Europe.

Focus on societal challenges and industrial competitiveness

We strongly support the Commission proposal for Horizon 2020 of addressing major societal and industrial challenges as a basis for research and innovation in the European Research Area. This will mean a stronger orientation of the EU and member state research and innovation policies towards such issues including environmental and economic challenges, including job creation, energy security, climate change, environmental protection, the ageing society, healthcare, transport & mobility, and information exchange.

A central challenge which Europe must tackle over the following decade is to maintain the position of European industry in a globalised world and especially in the face of fierce competition from Asia and America. "Staying competitive and ensuring employment" is therefore a challenge of crucial importance. Europe also needs to secure production facilities in Europe in the future. If not, there is a risk that research capacity will be transferred to other parts of the world following the transfer of production.

Manufacturing companies are very important for the creation of jobs in Europe. We need to develop the competitive edge for the companies in order to face the challenge of global competition. Industry in Europe has to be sustainable and excellent in terms of energy and resource efficiency as well as with regards to the competence of its employees. Technology development has to be placed into such a context if we want to achieve the goal of really making a contribution to the European society. Sustainable manufacturing, ICT-enabled and high performance manufacturing and exploiting new materials through manufacturing are examples of important areas to focus. To further address this challenge strategic analyses of what areas Europe must pursue and take the lead in is one important element.

Addressing innovation in the broad sense

The Horizon 2020 must focus on RDI relating to product, process and service development in the broader sense. Innovation in services, including the higher extent of services in industrial activities, need to get more attention in the future. Services are increasingly becoming part of tangible and intangible products and

manufacturing industries are changing to include more and more services. This leads to an economy where frontiers between industry and services are decreasing and, at a certain point, perhaps fading.

As regards eco-innovation, climate change and environmental protection certainly figure among the grand societal challenges and eco-innovation must therefore be supported at much higher levels on the EU level. Global resources will be increasingly scarce as a result of growing population and living standards. Eco-innovation in the form of developing new resource-efficient technologies contributes to global sustainability, European competitiveness, and can ultimately help Europe in the transition to a low-carbon economy.

The role of European Technology platforms

The creation of European Technology Platforms, ETPs, industrial involvement has increased in all road mapping and priorities setting activities. European business has invested greatly in the conceptual development of the ETPs and these platforms have defined R&D priorities, timeframes, and action plans on issues where growth, competitiveness and sustainability objectives require major medium- to long- term research and technological advances. They are an important source of insight, which are used explicitly to provide strategic guidance and for establishing research agendas, relevant to the whole spectra of research. We believe the role of the ETP:s could be developed and increased, also for elaborating strategies for initiatives in relating areas as societal challenges and innovation. This might require a deepened multi-disciplinary and cross-sector approach. There is also a need for increasing the flexibility, including the linking of several platforms to each other and finding synergies.

Continue Private Public Partnerships for research and innovation

Since the launching of the recovery plan in 2008 and the associated Private Public Partnerships, PPP, initiatives (for example “Factories of the Future” and “European Green Car Initiative”), another big step forward has been achieved. The public-private partnerships established for research collaboration are formed with a clearer aim of reaching the market. Europe needs furthermore to address the availability of funding for the commercialization stage after research and development. The opportunities to have a continuous dialogue with all stake holders, identify targets, make strategic research agendas and road maps, and to transfer the needs into common R&D programs work very well. We believe there is a great potential in this concept and it should be further developed in the Horizon 2020, especially in creating synergies between different EU and member state programs and instruments. In this context the PPP:s could become the core instrument of future European Innovation Partnerships.

For the further development of the PPP:s the roles between the private and public partners should be clearly defined. The objectives should be decided together and the industry should be responsible for developing a strategic research agenda and setting short-term priorities on the annual basis. The public side should take the responsibility concerning the administration of the budget, including programme management and calls. Also the evaluation should remain a responsibility for the Commission. The monitoring of projects and disseminating of programmes and project information could be tasks carried out by the private side. Also the clustering of projects could be facilitated by the industrial groups of the PPP:s.

Focus of future work-programs and projects
The concrete future work programs of Horizon 2020 would benefit from a *stronger focus on the business relevance* of the research it funds and on the needs of industrial participants including SME:s. If expoitation does not take place during the project, the chances of the SME successfully exploiting the results later on are slim. New routes to exploitation should therefore be opened up at the end of the projects. The participation of SME:s should also be flexible and allows for a more active role in the project when coming into the exploitation phase. This could also require new forms of flexible, lightweight and well-defined forms of sub-contracting or associate partnership.

We also encourage the *testing of new methods.* For example, technological development and demonstration activities in the field of production technologies for sustainable and competitive European factories could be integrated in the Factories of the Future (FoF) programme. A new instrument could be developed based on a bottom-up approach for industrial research needs and 10% to 20% of the funding dedicated to FoF calls (open calls) could be dedicated to it. This additional opportunity should help to integrate the specific research needs of SMEs within FoF.

European research funds, both from EU and national sources, are currently week in backing new technology when it approaches the demonstration phase. It is a big step from a research result to a final, marketable product. A comprehensive approach is needed in the Horizon 2020, in which research activities and industrial exploitation are integrated within the same project. We therefore welcome if call topics would be launched where demonstration should represent a relevant share of the project’s activities.

A stronger focus is needed on development steps and on framework conditions allowing innovative technologies to reach market take-up-level. This approach brings more actors together and will require integrated programmes and projects. The step of demonstration needs to be systematically included in the whole

innovation process, and not only at the end of it as a test bed. Demonstration should be fully integrated in the Horizon 2020 and in the model of Private-Public Partnerships. Such a change must be accompanied by modified award criteria as scientific excellence is not a key criterion for such activities.

It is also important to consider that projects on EU-level, closer to the market uptake, is more challenging for industrial collaboration between competitors. Consequently IPR and publication requirements need to be addressed to protect the individual business interests. Innovation projects closer to market uptake are often easier to handle on a national basis and therefore flexibility is needed between national and EU-financed projects. There should also be a flexible and easy procedure to enlarge a successful national R&D&I or demonstration project to the European level to deepen and widen the scientific significance and/or examine the pilot markets and ensure the influence on European industry.

A better exploitation of the potential synergies between the research and innovation should be put in place in order to address technical and business objectives at the same time.

The knowledge triangle and European Institute of Innovation and Technology
The different parts of the Knowledge triangle need to be addressed together, as in the the European Institute of Innovation and Technology (EIT) initiative. The mission of EIT is to grow and capitalise on the innovation capacity and capability of actors from higher education, research, business and entrepreneurship from the EU and beyond. This is going to be achieved through the creation of highly integrated Knowledge and Innovation Communities (KICs).

Engineering industry of today is part of the knowledge business – hence competence is crucial in our industries. We would like to include the Higher Education much more into the discussions on research and innovation. The Higher Education system has a crucial role in the spreading of innovation and providing the skills and competencies needed for competitiveness.

In addition we want to see new concepts developed in relation to “open innovation”, implying the use of internal and external R&D sources, openness to external business models. This includes a variety of collaborations between companies, institutes and academia. The method of “open innovation” explores possibilities of new ways of collaboration, for example web-based interaction as well as structures for co-location. We would like to see more interest for the new possibilities and opportunities that are to be found in this area.

We see a great potential in the EIT initiative, in securing the continuity between results of research, transferring breakthroughs into business opportunities, and exchange of build-up of competences as well as stimulating the mobility between industry and academia. We support the Commission proposal to proceed with new KICs, of which “Value-added manufacturing” and “Urban mobility” are of strategic importance and should be prioritized.

Criteria’s for evaluation
Industrial participation in EU RDI programmes depends strongly on the selection of themes on the one hand and on the ratio of costs and benefits of participation on the other. Another measure would be to give more weight to impact and relevance when proposals are evaluated, at least for application- and market-oriented R&D and for innovation activities. The current imbalance between academic and non-academic evaluators needs to be corrected, as it often leads to an excessive emphasis on scientific excellence, rather than on problem solving, innovation and economic impact. The involvement of qualified evaluators from industry seems to be held back by excessive concerns about potential conflicts of interest although potential conflicts of interest of evaluators by definition is independent of the nature of his or her employer. To facilitate participation by experts from industry, more use should be made of remote evaluation procedures, where appropriate.

The internationalization of the Horizon 2020
The internationalization experiences in the area of the Framework Programme research have been more the result of individual initiatives and industries than a deliberated strategy of internationalization of European research. To respond to the globalization of R&D and to make best use of potential global partnerships, the Commission should continue to extend the global reach of the Framework Programme and the future Horizon 2020. It should develop a more nuanced strategy that takes account of the differing characteristics and capabilities of various parts of the world. For the engineering industries this global perspective is of crucial importance. In particular because:

- Global enterprises have a pronounced strategy to focus geographically and to place activities where they are best suited. A concentration of R&D activities to one or a few places in the world creates a very competitive situation between individual groups within the same global company. The Companies identifies the best groups in a certain technology area. The availability of world leading competence in strategic areas is a major factor to attract and retain R&D- intensive companies in Europe.
- The engineering industries have a high level of exportations, which implies that companies are already adopting their own internationalization

strategies, with which new research internationalization initiatives should be aligned.

- The companies R&D requires multidisciplinary orientation which can be found on a global arena, since industrial technologies progress is the result of the synergic integration of several discipline research results (ICT, mechanics, automation, new materials, energy, production management, etc).

The Association of Engineering industries believes that the Commission proposal for the Horizon 2020 has the potential to developing framework conditions that stimulate innovation, entrepreneurship and thus growth and employment. If Europe's goal is to achieve sustainable growth and competitiveness, this can only be accomplished by improving *the entire research and innovation system*. This includes not only the capacity to create new knowledge (research), but also an understanding of when, where and how this knowledge can be used and applied on the market (innovation).

We need a cultural change in Europe towards a society where innovation is encouraged. That is why joint work that involves industry, public authorities and academia is essential. In this respect, the EU must strengthen its leading role. With a new strong focus to go from research to innovation and to support demonstration projects and coordinate between the research and innovation policies, we will have a manufacturing industry in Europe that stays competitive and in the lead.

The Association of Swedish Engineering Industries is a member of the European Engineering Association, **Orgalime,** and takes part of their R&D working group. We are also involved in **BusinessEurope** working group on Research, Technology and Innovation. We are supporting their respective positions on the Green paper.

The Association of Swedish Engineering Industries is also member of the European Technology Platform, **Manufuture,** and is coordinating the national Manufuture platform together with Chalmers University of Technology and Swerea/IVF. Together with other European industrial engineering associations we have created the **European Factories of the Future Research Association (EFFRA)** and engaged in the public-private partnership for "Factories of the Future". Our member companies are taking part of several European industrial organisations, Technology platforms and public-private partnerships.

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Teknikföretagen, the Association of Swedish Engineering Industries, represents more than 3,600 engineering companies. Our members operate in a range of sectors such as telecommunications, fabricated metal products, electronics, machinery and equipment, office machinery and apparatus, power industry, instrument technology, optics, motor cars and transport equipments.