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VDMA Position Paper on Horizon 2020



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Introduction

The German Engineering Association (VDMA) is the largest association representing the capital goods industry in Europe. It accounts for over 3,000 German and international member companies, approximately 947,000 employees (October 2011) in Germany, and a turnover of around 200 billion euro (2011). The capital goods industry has a large number of small and medium-sized enterprises (SMEs); about 86% of all VDMA members are SMEs (according to the EU definition), and two-thirds of them have fewer than 100 employees.

With an average export quota of 75%, the sector is highly export-oriented and extremely successful on an international level. VDMA member companies are global market leaders in 18 of 32 engineering product areas.

Mechanical engineering is the backbone of European industry. In Germany, this sector directly employs around 900.000 people (around 3 million in Europe) and produces machinery and equipment for the entire manufacturing sector. Furthermore, it is a research- and innovation-intensive sector, which contributes around 9% to the overall private R&D expenditure in Germany, invests approximately 11 billion euro in innovation each year (2009) and employs more than 167,000 engineers.

For a long time, VDMA has helped its members to engage with European research networks on a project-by-project basis. More recently, VDMA has worked with the European Commission on a more strategic programmatic level. This process started with VDMA's central involvement in various European technology platforms, such as MANUFUTURE and EUROP. It culminated in its direct engagement in a public-private partnership with the EU called "Factories of the Future" and the creation of the European Factories of the Future Research Association (EFFRA). VDMA is also a member of the R&D group of the European Engineering Industries Association, ORGALIME.

I. Structure and budget

HORIZON 2020 aims at bringing together all EU research and innovation funding within one common strategic framework (FP + CIP + EIT). This approach is considered to be a significant step forward and has the potential to strengthen the attractiveness for participants and the efficiency of the programme.

The proposed budget of 80 billion euro is a nominal increase compared to the Seventh Framework Programme (FP7). However, if we are to consider the integration of new elements, the extended scope, and the change in priorities, it appears that this budget does not reflect the ambitious objectives.

Despite its high importance in terms of competitiveness and the growth objectives of the Europe 2020 strategy, the "Industrial Leadership" pillar has not benefitted from the overall budget increase to the same extent as other priority areas. As additional elements have been introduced, we are concerned that this shift in focus will reduce the budget for collaborative pre-competitive industrial research and that, consequently, industrial participation might further decrease.

This applies particularly to the area "Nanotechnologies, Advanced materials and Advanced manufacturing and processing": the budget is slightly higher than in FP7, but its share of the overall budget has decreased, despite the inclusion of new elements such as PPPs, KETs and large-scale pilot plants.

In the framework of its importance and the increased scope for funding, the budget for "Industrial Leadership" and in particular for "Nanotechnologies, Advanced materials and Advanced manufacturing and processing" should be accorded more weight.

II. Manufacturing in Horizon 2020

Production technology has a unique role in the innovation process and is an enabling technology for all upcoming new techniques and products. All new technologies need to be translated or integrated into products and need to be produced with innovative and competitive production technologies. Only through production technology and equipment can new technologies be applied, deployed and meet societal challenges. In Horizon 2020, this essential innovating role of manufacturing is not sufficiently addressed. As a cross-cutting core technology, “Advanced manufacturing and processing” should have a dedicated budget line.

On the one hand, it is welcome that “Advanced manufacturing and processing” has been described as an independent and stand-alone enabling and industrial technology and that the relevance of enabling and industrial technologies as cross-cutting technologies for the “Societal challenges” pillar is acknowledged. However, the description of the role and scope of the “enabling and industrial technologies” and in particular of “advanced manufacturing and processing” is confusing with regard to the different contributions and does not reflect the importance. In particular, it should be stated clearly that “advanced manufacturing and processing” is not only relevant for the key enabling technologies, but also for addressing the needs of European industry as a whole and in a broad range of sectors.

The paragraph on key enabling technologies in COM (2011) 811 addresses a “dedicated governance structure” and “joint work programmes” for cross-cutting KETs. In order to achieve the desired transparent programme structures, additional structures and rules should be avoided. In particular, VDMA objects to the use of specific selection criteria: the awarding of grants should only follow the established criteria of excellence, impact, and quality/ efficiency of implementation.

Because of its importance for competitiveness and its essential enabling role in bringing technological solutions to the market, manufacturing should be identified as a separate research area and have a dedicated budget line.

For a competitive and sustainable European industry, research is necessary for both existing technologies and new enabling technologies.

III. Transparency of architecture: cross-cutting activities

One of the core objectives of Horizon 2020 is to simplify access through a more transparent programme structure. However, the interaction and the links between the three pillars remain unclear. According to Horizon 2020, work programmes should identify cross-cutting actions, and funding sources from different priorities might be combined. This approach is promising, but should be further clarified, taking into account the perspective of new applicants and the principle of easy access. Special attention should be paid to the relevance of “enabling and industrial technologies” for societal challenges.

The “cross-cutting actions” between the priorities “Leadership in enabling and industrial technologies” and “Societal challenges” should be clarified. The high relevance of “Enabling and Industrial Technologies” to the “Challenges” pillar should also be highlighted. When integrating KETs, the transparency of the programme structure and procedures should be ensured.

IV. Shift to Innovation activities: risk of market distortion

Horizon 2020 is shifting the focus towards more funding of innovation activities, including demonstration, pilot-lines and close to the market activities. Overall, VDMA appreciates that innovation aspects are being given more importance. However, VDMA believes that public intervention should focus on shaping innovation-friendly framework conditions and on ensuring fair competition and a level playing field. Therefore, VDMA fears that the funding of close to the market activities will increase the risk of distortion of competition and could lead to crowding-out effects and inefficient market structures. In particular, large-scale pilot activities might be critical from this perspective.

In principle, public funding should focus on precompetitive research, because here the impact on competitiveness is high while the risk of market distortion is low. In this context, special attention should be given to the definitions used in Horizon 2020 (e.g. “pilot plant” includes potential commercial use). When approaching market readiness, public aid becomes more and more critical. The two different funding rates for R&D and close to the market activities are addressing this, but we consider an aid intensity of 70% still to be too high.

Furthermore, a focus on large-scale piloting and demonstration activities will change the focus of the programme and reduce the budget for precompetitive research: with a limited budget, for every euro spent on innovation activities, one euro less is spent on technological research.

VDMA thinks that the best way to bridge the gap between research and application is to increase the industrial relevance of work programmes and projects (for example, as implemented in the PPP “Factories of the Future”) and to strengthen the role of manufacturing as one of the key elements of the innovation process. In addition, more attention should be given to how to make results available to and attractive for a wider range of potential industrial users (in particular SMEs). It would be helpful to pro-actively transfer the results through dedicated initiatives, for example through transfer platforms.

In general, the focus should be on precompetitive research. Close to the market activities should only be supported in exceptional and justified cases, following a specific impact assessment on a case-by-case basis and using a transparent set of criteria. A red line has to be drawn with regard to competition aspects.

V. Size of projects

With regard to project size, VDMA prefers a broad approach with a large number of small/mid-sized projects and a small number of larger projects; this opens up access to a broader range of enterprises and SMEs.

VI. Public-private partnerships (PPPs)/European technology platforms (ETPs)

VDMA is supportive of the inclusion of “Contractual PPPs” in Horizon 2020 and – in particular – that a possible continuation of the PPP “Factories of the Future” is envisaged. From an industrial perspective, the “Factories of the Future” initiative is an important success story; it was well accepted by industry (including SMEs) and produced industry-relevant and application-oriented research results. The VDMA supports the continuation of this instrument and will contribute to its further development. However, with a growing number of PPPs, activities must be coordinated and any overlaps avoided. VDMA also welcomes the role of European technology platforms, such as MANUFUTURE.

The “Factories of the Future” public-private partnership is a success story and VDMA strongly supports its continuation in Horizon 2020.

VII. Simplification and “cutting red tape”

The proposals for simplification are promising. In particular, a more transparent programme architecture is essential for encouraging participation. Moreover, a reduced number of different funding rates might reduce the administrative burden related to the preparation of grant agreements and project reporting. However, there is a drawback of the rule “one action, one funding rate”: if research and demonstration activities are split into different projects/calls, the idea of bringing research and innovation together is contradicted. A particular strength of collaborative research in FP7 is that the industrial relevance is increased by combining research and validation in one project.

Another area with huge simplification potential is the legal management of grant agreements. Despite the considerable progress made in FP7, current instruments and legal frameworks are still rigid with regards to modifications of content or partnership and do not allow for easy and flexible adaptation to the needs of the projects. Therefore, VDMA would welcome new, more flexible and effective funding instruments in order to facilitate the easy and flexible participation of industrial partners (in particular SMEs). A more flexible geometry of projects, for example through easier accession to consortia, “associated partnerships”, industrial “experiments” or giving room to small-scale sub-projects, would open up new routes to industrial and commercial exploitation.

VDMA fully supports the proposals for further simplification, in particular the use of a smaller number of funding rates. However, it must be possible to combine R&D and innovation in one project in order to link these two elements together. Further simplification should be explored through the use of flexible, SME-friendly instruments and a flexible format of projects.

VIII. Performance indicators

Patent applications are only one potential performance indicator, which is not adequate for all sectors, technologies and maturity levels. It should be complemented by other performance indicators, such as key figures for product and process innovation.

IX. SMEs and medium-sized companies

VDMA appreciates that special attention has been given to the needs of SMEs. The dedicated SME instrument looks very interesting and is – because of the bottom-up approach and the 3-phase-concept – in keeping with the needs of small and medium-sized companies.

VDMA regrets that the instrument described in COM (2011)811 will be exclusively dedicated to SMEs, as defined by the European Commission. The added value of European research for

SMEs is the cross-border cooperation with universities, research institutes and bigger companies. If only SMEs are eligible, this advantage will be lost. Furthermore, this instrument could also meet the needs of medium-sized companies with up to 1,000 employees, which will be excluded.

The use of exclusive instruments for SME support also raises the issue of the rigid SME-definition, which leads to a situation where medium-sized companies (with up to 1,000 employees) and their specific needs are not adequately considered. We would like to stress the need to revise the SME definition and extend the access to specific instruments to medium-sized companies with up to 1,000 employees.

Other participants should also be given access to the easy-and open-call-based SME-instrument provided for under Horizon 2020.

Contact:

Kai Peters
Research Advisor

VDMA European Office
Boulevard A. Reyers 80
B - 1030 Brüssel
Tel: + 32 27 06 82 19
Fax: + 32 27 06 82 10
Email: kai.peters@vdma.org