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Orgalime views on the Horizon 2020 mid-term review -The EU should build on its strengths and achievements, therefore continue to support industrial research -

Executive summary:

Orgalime is the prime voice of the EU engineering industry as whole. This is a growing industry both in terms of jobs and turnover, with turnover reaching 1,900 billion euro and employment 10.9 million people in 2015. At the present time, most of the growth in our industry arises from the innovative products, processes and systems which our companies develop in the EU and market worldwide. Despite the lack of manufacturing investment in the EU, which one might expect would favour the displacement of all the value chain for engineering products, Europe still offers a number of advantages at the level of framework conditions, notably through national and EU policies for R&D. Orgalime welcomes the efforts made by the EU, particularly under Horizon 2020 and looks forward to the continued support of the EU for the industry's innovative efforts in the EU.

Our main messages include:

- The EU should aim to build on its strengths, and engineering is a major asset of Europe.
- Orgalime's industry values Horizon 2020 very much, in particular the applied industrial research part. The PPPs are in our view providing a boost for Europe's competitiveness and growth.
- Orgalime asks that the Horizon 2020 budget, especially the Leadership in Enabling and Industrial Technologies (LEIT), should be maintained at the level it is.
- The R&D efforts deployed by companies translate into IP and thereby into innovations. In this context, data plays a crucial a role as does its confidentiality. Data confidentiality is crucial to ensure participation of industry in Horizon 2020.
- All types of innovation and innovation from companies of all sizes bring value to Europe's competitiveness. Horizon 2020 should continue to support the broad range of manufacturing companies.
- Research is risky and one of the reasons that manufacturers participate in EU funded R&D is because of their desire to share the risks and the substantial costs involved. Therefore, in our view, the budget should continue to be disbursed in the form of grants. Grants and loans do not fulfil the same goals and are therefore not interchangeable exchangeable.
- The way of measuring impact should be improved.
- Calls addressing test and demonstration facilities should be further developed.

In the present position we develop these messages and also provide more technical comments in annex

Orgalime, the European Engineering Industries Association, speaks for 41 trade federations representing the mechanical, electrical, electronic, metalworking & metal articles industries of 24 European countries. The industry employs some 10.9 million people in the EU and in 2015 accounted for more than €1,900 billion of annual output. The industry accounts for over a quarter of manufacturing output and a third of the manufactured exports of the European Union.

www.orgalime.org

1. Continue funding R&D and Horizon 2020 especially the industrial pillar

Framework Programmes are a key asset of the European Union that should be preserved now and even further developed after 2020. Orgalime indeed considers European Research Framework Programmes as crucial to its policy for increasing the competitiveness of the European industry and consequently for jobs and growth in the European Union. The EU Framework Programmes play an important role in encouraging cross-border cooperation between companies of different sizes and research and technology organisations (RTOs) or universities, creating Pan-European networks and opening new market possibilities.

However, Orgalime has deep concerns for the future of European research and innovation, particularly in the area of industrial research. Many Member States are decreasing their national funding in research and innovation. This gives rise to serious doubts about their capacity and will to reach the target of 3% GDP spending in Research & Development (R&D) by 2020 as stated in the Europe 2020 strategy or to the stated aim of manufacturing output representing 20% of EU GDP.

Additionally, the cuts in the Horizon 2020 budget of 2015 in favour of the European Fund for Strategic Investments (EFSI) limited the possibilities to perform R&D and innovation activities: while Orgalime is supportive of EFSI, we are concerned to see that its funding has come at the expense of the budgets allocated to EU co-funded R&D. Hence Orgalime invites the European Commission and the Member States to think long term and to invest more and more consistently in industrial research and innovation.

2. Focus on European strengths and specificities

Orgalime recommends the European Union to focus on Europe's strengths. First among these is our manufacturing industry, which is a fundamental source for innovation and jobs. Our companies are the backbone of the European economy. The engineering industry manufactures leading edge technology products and systems that offering high value added solutions both in the EU and worldwide.

Such developments take place in companies of all sizes: Orgalime therefore recommends the European Commission acknowledge that innovation happens in companies of all sizes and that innovators are in all companies no matter their size or business areas: they are all necessary for a well-functioning ecosystem.

Horizon 2020 should therefore continue to include also larger companies and avoid an unbalanced priority focus on SMEs. Engineering sector firms are increasingly looking for collaboration platforms/ecosystems where global firms, SMEs, start-ups and research institutes can work together. For capital goods, the innovators are most often existing companies with a brand, with a client network, etc. A well-balanced ecosystem of companies of different sizes will allow knowledge and creativity to flow along the value chain and increase the possibilities for innovation and new solutions to be spread out more easily. In short, the potential impact is more likely to be secured.

Additionally, Horizon 2020 should take into account that start-ups are diverse and their specificities need to be addressed. Engineering start-ups have to face, for example, high costs for buying equipment.

3. Confidentiality of industrial innovation and knowledge should be clearly guaranteed

Orgalime recommends to continue to protect the right of companies not to disclose information from a Horizon 2020 project they participate in, and to be able to take the necessary steps to protecting such information, if they judge that its disclosure would be detrimental to their economic interest.

The European Commission is promoting open innovation in some parts of the Horizon 2020 programme. Open innovation enables companies to move out of their “comfort zone” to develop new solutions and business opportunities, it is one interesting innovation tool (out of many). However, the spirit of open innovation should not endanger the necessary confidentiality of research projects generating IP which can then be applied by industry: open innovation does not mean sharing everything with everyone. There is a real need to protect investment in knowledge in order to strengthen business interest. Not doing so would be naïve and detrimental to the competitiveness of European companies. Indeed, the EU should not offer research results (and IP) arising from the collaboration between companies and research providers to global competitors.

In this context, Orgalime considers that opening up as of 2017 “by default” all scientific data produced by future projects under Horizon 2020 bears too many uncertainties for the business community. The distinction between “ideas” and “knowledge” proposed by the European Commission is not reassuring enough, as long as a company participating in a project is not allowed to protect what it considers as being crucial – be it an idea or knowledge. Orgalime asks that “opting out” should therefore be easy and leave it to companies to decide whether to do so or not. If companies cannot protect the ideas and knowledge they have created, this may strongly hamper the participation of companies in Horizon 2020 projects. Especially in activities of the industrial pillar of Horizon 2020 IP protection is important.

Orgalime also cautions the Commission on the possibility that universities could bypass the opt-out mechanism and ask for data (Horizon 2020 research results from companies) for the general purpose of their research.

In any case, policymakers must refrain from considering obliging companies to grant access to business outside the domain of pre-competitive research. In industrial value networks, enterprises must be able to decide and to negotiate to what extent and under which conditions they share data. The intervention of legislators might interfere with already growing data ecosystems, expose sensitive trade secrets and undermine the legal certainty and trust needed for investments in connected factories and data-driven business models.

4. Grants have a major role to play in research and innovation

Orgalime strongly advises the European Commission to maintain funding in the form of grants for research in applied science. We firmly believe that grants and loans do not fulfil the same goals and are not interchangeable.

The process of carrying out research and innovation is a risky one: It is a constant trial and error process to hopefully achieve the (desired) result. Loans financing, which presupposes a strong expectation of being able to reimburse the loans is therefore not the ideal financing vehicle for riskier innovative research. For this, including the phases of demonstration and development activities, grants are better suited.

Loans and equity are of course important sources for financing the development of projects at a later stage and this is reflected in the attitude taken by banks and even venture capitalists

Therefore, public support of pre-competitive collaborative research has an essential role to play in bridging the risk gap between basic research and closer-to-market-activities.

As a consequence, Orgalime also wishes that an end be put to money being shifted from the Horizon 2020 budget (grants) to the European Fund for Strategic Investments (EFSI) (loans). Orgalime welcomes the possibilities offered by EFSI to perform innovation and research projects. However, projects suitable for EFSI financing are of a very different nature than Horizon 2020 projects. Therefore, shifting budget from Horizon 2020 to EFSI is not, in our view, the best way to stimulate industrial research and innovation

5. Horizon 2020 Public Private Partnerships (PPP) are a great asset for Europe's growth

Orgalime recommends that the different forms of PPPs are kept and further built upon in Horizon 2020. The PPP concept is an efficient and long-term sustainable way of tackling the challenges that society and industry are facing.

PPPs should therefore be strengthened further in their role of defining funding priorities and consequently in financial terms. Without the PPPs, European Research Framework Programmes would be back to the old research canvas with a very low involvement of industry, thereby undermining this Commission's stated core focus on jobs and growth. .

cPPPs and JTIs have developed new models of cooperation and new transparent ways of road map building on mutual work, between companies, RTOs and universities. PPPs develop topics closer to industries' actual needs. Consequently, the cPPP and JTI call topics are well focused and at the same time open to any interested consortium.

However, the PPP-model has to be limited to areas of strategic European importance and overlaps should be avoided while cross fertilisation between existing ones should be promoted.

6. Impact measurement should stay within realistic limits

Orgalime fears that too much attention is put on (short term) impact: the expectations that the Commission, which has hitherto focused more on basic research which has a very long term horizon, for short term returns in the PPPs is somewhat surprising as well as being unrealistic. Orgalime recommends adapting the reporting system so that it stays within realistic limits. Orgalime in particular stresses that a project's obligations should mainly concern the means put by the project holder (similar to a due diligence scheme).

Project holders should not be forced to commit to inflexible reporting schemes. The risk is then that people are tempted to report only on good news or even cheat to attain unreachable objectives.

A research project by definition contains many uncertainties about the impact it will have. Research, development and innovation can have a quick, direct and tangible impact, or a huge indirect impact several years later or it can just be a failure. Innovation can take time to reach the market or find the conditions for it to thrive; it took for example decades for laser to be introduced in manufacturing. Bringing innovation to the market and delivering impact is not a linear process where companies go from A to B with a secure outcome.

7. Consortia are a great European added value

Orgalime invites the European Commission to continue projects fostering the real European added value through fostering cooperation between stakeholders in consortia. This part of Horizon 2020 is indeed much appreciated by our industry.

Horizon 2020 is, in our view, beneficial to building trust between universities, RTOs and industry from different Member States. Working in consortia contributes to lowering the uncertainty of collaborating with unknown partners. Managing uncertainty is clearly an asset when innovating.

8. Oversubscription is a challenge

With an overall proposal success rate of just over 10%, Orgalime considers this oversubscription as a challenge for the success of Horizon 2020. We therefore further prioritization of projects' scopes and a more detailed description to help in lowering oversubscription.

The content of calls should be open to technology and/or solutions, but formulated in a consistent and unambiguous manner and oriented clearly on relevant industrial research topics. This would result in less but more focused proposals and to channelling putting money where it is most needed.

Oversubscription hinders industrial partners participating in Horizon 2020. Without industrial participation Horizon 2020 targets of more economic growth and more innovation are simply unreachable, as would be a growth in jobs arising from these.

Orgalime recommends to better brief National Contact Points on what impact is expected from a specific call topic. This will contribute to avoid that experts review proposals that are absolutely not relevant to the calls.

The European Commission should also be more open to give relevant information to stakeholders and national authorities.

9. Test and demonstration facilities

Orgalime recommends that test and demonstration facilities be further developed in Horizon 2020. These facilities are a good approach to make use of previous research results.

They allow for a valuation of the results and contribute to crossing the bridge from research to markets. They contribute to the interpretation and application of research results into prototypes and value added solutions.

This research continuum brings added value to Europe's economy. Therefore, the use and potential of test and demonstration facilities should be exploited more in Horizon 2020.

10. Public procurement for innovative engineering products and services

Orgalime would welcome initiatives similar to the (EAIP) European Assistance for Innovation Procurement (set up for ICT procurement) for engineering products like lighting, infrastructure (water, waste etc.) or for transport.

Such support could facilitate the participation in Pre Commercial Procurement (PCP) and Public Procurement to Innovation (PPI) projects under Horizon 2020, aiming at increasing procurement of innovation.

Each year, the public sector purchases goods and services for a significant figure that opens up an enormous opportunity for new, innovative solutions to flourish in so far as the basics of public procurement, that is cost effectiveness are maintained. Public procurement would also allow companies with innovative solutions to have lead customers that would help them develop their business further; reference customers are a crucial element to scale-up. Here, the public sector can clearly offer opportunities for creating new growth in Europe.



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TECHNICAL COMMENTS ON HORIZON 2020:

A. The TRL-level in general is not a precise scale

Orgalime recommends that the consortia should be free to develop their activities and choose the TRL level that suits best according to sector and research topic. Consortia will be more comfortable and in the end this is a pure semantic discussion without real relevance. TRL-levels should not be prescribed to projects.

TRLs are definitely not a quality indicator, nor a promise for higher impact. Project proposals should be assessed in their specific context, which is not necessarily a linear one.

TRL should be a rough indicator to stimulate discussions and not a selection criterion.

B. Applied research should not lead to market distortion

Orgalime recommends that middle TRLs are favoured. Indeed, it is in these middle TRLs that European Research deploys its potential and where interest of companies for EU-cooperation is the highest. In middle TRLs, customer needs are well captured and this fosters the growth of tomorrow.

It is much easier in terms of trust between companies and with RTOs or universities to operate in middle TRLs. Companies favour easy to administrate research and innovation projects to the ones full of red tape (hence slower). Competition rules make cooperation in higher TRLs rather complicated. However, Orgalime agrees completely with the need for pilot projects in certain areas and sectors (chips or electronics) or demonstration activities (e.g. connected & automated driving).

C. More flexibility in the Horizon 2020 procedure

Orgalime recommends that the “no negotiation position” should be softened, as the discussion between experts and consortium members could ensure better projects with higher impact.

As the aim of Horizon 2020 is excellence, better projects resulting from a negotiation process would help reach that goal. The eight-month timeline would still allow for negotiation.

Moreover, flexibility during the projects would help adjustments for consortium members and impact positively the projects' results.

D. Inform the proposers as soon as possible on the outcome of the evaluation

Orgalime would welcome a change in the way proposers are informed about the results of their proposal. Currently, it is common practise to send the evaluation results on the very last days of the foreseen time frame despite the fact that the results had been available for weeks.

E. Limit the maximum number of pages for the proposals even further

The European Commission should review and better coordinate the formal and substantive requirements of the application procedure so that they also lead to a reduced administrative effort in practice.

Applications under Horizon 2020 call for such detailed descriptions of the innovation in view and the state of the art that it is scarcely possible to remain within the target number of pages.

F. Rules of reimbursement

Orgalime recommends that the provisions on project cost calculation and final reporting are adjusted to reflect the rules prevalent in businesses. As an alternative to final reporting of one-size-fits-all costs, it should be possible to report the real indirect costs actually incurred by the business.

The calculation of individual costs (in particular payroll costs) and the blanket approach to overheads under Horizon 2020 differ markedly from the way companies usually calculate costs and also from the calculation method in FP7. As a result, parallel bookkeeping is necessary in all project phases, that is the internal full costs in accordance with the usual business standard and the costs which are eligible for the Horizon 2020 project must be calculated in parallel which is rather cumbersome. This also applies for the costs of in-house services which are generally passed on to the customer via an internal charging system in industrial businesses. This internal charging is based on a full-cost calculation and not on the calculation method specified under Horizon 2020.

The consequences of these requirements lead to more difficult decision-making among companies as well as uncertainty about correct implementation. In particular SMEs, which are supposed to enjoy special attention and support in Horizon 2020, have difficulties in implementing and completing the requisite reporting. They often lack the human resources and administrative structures for parallel bookkeeping and hence are unable to meet the requirements of the Horizon 2020 provisions properly.

The recommended daily recording of activities in projects supported under Horizon 2020 also poses difficulties for companies, in particular SMEs because without time records in businesses or some other record of activities, such a listing is almost impossible. Apart from this, the associated control of employees' performance by technical devices is legal only under certain conditions, if at all.

Moreover, the actual contribution to the costs can no longer be deduced directly because of the marked difference between the nominal and the effective funding rate. As a result, this leads to a high level of planning uncertainty in companies and poses a considerable risk for them. The problem lies in the fact that the real full costs for the company differ from eligible project costs under Horizon 2020. Among other things, this results from the distinction between "direct costs", such as payroll costs, and "indirect costs", such as site rental costs and differences in cost reimbursement. Through the blanket reimbursement of indirect costs at the rate of 25%, not all of a company's real indirect costs are covered so that a difference between the nominal and effective funding rates arises. Similarly, the number of "productive hours" has an influence on the funding level. Productivity requirements differ

from those usual among businesses and, as a rule, lead to a reduction in the effective funding rate.

G. Intellectual property rights (joint ownership) in funded research projects

Orgalime demands that clauses on ownership are industry friendly. Especially with regard to co-ownership of jointly developed research results, there must be no default clause which is merely to the advantage of project partners from academia.

It is difficult to reach agreement with the research partners on exploitation of research results, in particular inventions, jointly developed in funded projects under Horizon 2020. The reason can be found in long-lasting contract negotiations, reporting and compensation obligations which often are to the financial disadvantage of industry partners engaged in publicly co-funded research compared to partners from academia. The default clause for joint ownership of jointly developed intellectual property ownership (joint ownership) of research results often leads to long-lasting negotiations on the consortium agreement. This scenario deters potential applicants – especially from industry – from taking part in confidence-based and fruitful cooperation with partners from academia.

It is of decisive importance for many potential partners that each co-owner of jointly developed research results is free to exploit these results without giving advance notice nor paying compensation to the other co-owner for the use of joint research results.

H. Cross-cutting issue (integration of horizontal aspects like social science)

Horizontal aspects form elements needed to reach industrial competitiveness, they are inherent to industrial leadership. However, they need to make sense in the context of the calls and should not be unilaterally requested for the sake of being there. For example, one does not need an ethics review of robots and drones in all projects including robots.

Nevertheless, one horizontal aspect that should be covered is data security which remains a key factor for the adoption of new digitised solutions by manufacturing companies and the wider economy.

To be competitive and accepted in today's society, companies need to take the horizontal aspects into account. Nevertheless, it should not become mandatory to include them as separate work packages. This will only create artificial activities and add on to the complexity of EU research and innovation projects.

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