POSITION PAPER

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BusinessEurope views on maximizing the impact of EU research and innovation programmes

KEY MESSAGES

1 EU framework programmes play a pivotal role in strengthening European finances for research and innovation. What is at stake is that the programmes bring a clear European added-value.

2 BusinessEurope strongly supports the objective and architecture of Horizon 2020. It brings major achievements such as support over the whole ecosystem of research and innovation and more targeted progress such as the two-stage evaluation procedure. Still, further improvements are needed, in particular tackling the oversubscription and low success rate.

3 Industry is highly committed to the 'societal challenges' and the 'industrial leadership' pillars. Public Private Partnerships (PPPs) and Joint Technology Initiatives (JTIs) are strongly supported as unique platforms to foster cooperation between public and private actors and to leverage the necessary funds for large-scale European projects.

4 The next EU framework programme must build on the achievements of Horizon 2020, which should not be put into question. Great attention is called upon:

- → Scaling-up the overall EU budget for research and innovation
- → Keeping a strong focus on the Industrial Leadership pillar
- → Pursuing financial support to secure active participation of large companies
- → Making the European Innovation Council fit-for-purpose
- → Continuing with grants for innovative research projects
- → Achieving synergies with other Union programmes
- → Handling access to research data with care

KEY FACTS AND FIGURES

In terms of funding, success rate went from 14% in 2014 to 11% in 2015.	Over seven years, 8 billion from H2020 through PPPs and JTIs will leverage 10 billion from industry.	Should the framework programme stop financial support for large companies, the risk of 'innovation leakage' is real.

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POSITION PAPER

Maximizing the impact of EU R&I programmes

Innovation, the process whereby new ideas are turned into economic and societal value, is a must for competitiveness, economic growth and job creation in Europe. An open marketplace of ideas, with framework conditions conducive to innovation are essential to enable companies to develop solutions addressing societal challenges.

Those framework conditions are manifold, starting from a more risk-taking culture, to the regulatory environment or skilled labour force. Funding, in particular public spending, plays a pivotal role as well in shaping a pro-innovation ecosystem. In many cases, public funding is crucial to leverage the necessary funding for innovative projects[1]. For decades the European framework programmes have been contributing, together with national programmes, to scale up European funds in support of research and innovation, with the objective of allocating 3% of the EU's GDP to research and development by 2020.

What is at stake is that EU research and innovation programmes bring a clear European added-value in areas which cannot be efficiently realized by individual member states (e.g. climate change, energy transition, protection of health and nutrition, mobility, etc.). By doing so, it is a means to make sure that funding is efficiently used and overcomes individual member state limitations.

The present paper provides a contribution to the current debate on how to maximize the impact of EU research and innovation programmes. The first part delivers proposals on how to optimise the further implementation of Horizon 2020 in the remaining four years. In a second part, it addresses a number of strategic issues for preparation of the next framework programme.

Making the best out of Horizon 2020

With a budget of nearly €80 billion over seven years (2014-2020), Horizon 2020 is the largest EU programme ever and the first one to explicitly address not only research, but also innovation. It finances research and innovation with the objective of supporting scientific excellence, strengthening industrial leadership and addressing societal challenges.

BusinessEurope strongly supports the overall objective and architecture of Horizon 2020. When compared with its predecessor, Horizon 2020 achieved major progress in better balancing EU funding over the whole ecosystem of research and innovation. The three-pillar structure has managed to better support impact-based research and innovation programmes.

[1] European Commission (2017), The economic rationale for public R&I funding and its impact

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Horizon 2020 is now contributing to not only speed up market uptake of innovations, but also harnessing benefits of European innovative projects and ideas for the European society.

Still, further improvements to optimise implementation of Horizon 2020 are needed in a number of areas of the programme, also looking at future challenges impacting research and innovation. Earlier this year, BusinessEurope submitted a detailed contribution to the Horizon 2020 interim evaluation process, which can be found here. A number of key points are outlined below.

Key achievements

- The three-pillar structure – excellent science, industrial leadership and societal challenges – is considerably helping to strike the right balance between fundamental research, applied research, innovation and market deployment.
- Simplification measures, for instance the improved usability of the Participant Portal or the reduced time to grant, are strengthening the efficiency of the programme.
- The two-stage procedure revealed to be a useful tool in many cases to pre-screen proposals and to have a more efficient selection process.

Areas for further improvements

- Oversubscription and low success rate remain an issue of great concern in Horizon 2020, since it is experiencing the lowest ever success rate of all framework programmes. Therefore, a more selective first-stage selection should be implemented, leading to a higher success rate in the second stage.
- The design of calls should still be improved. Calls should be open to different technology solutions, but have a better defined thematic scope and desired impact.
- In the overall evaluation process, more efforts are needed to properly outline the three criteria of excellence, impact and implementation. It is of utmost importance to assess in particular the impact of research and innovation projects, with the objective to achieve concrete industrial, economic and societal value. In this sense, the expected output should be also better outlined.

At a glance - In 2015, the number of proposals under Horizon 2020 increased by 25% compared to 2014. This increase mainly stems from businesses, which accounted for an increase of almost 27%.

Almost 50% of participants were newcomers, many of which are small and medium-sized companies. However, in 2015, success rates were lower than 2014. Numbers of proposals declined from 13.2% to 10.7%, and funding reduced from 14.2% to 10.9%[1].

Industry participation in Horizon 2020

Industry is strongly committed to the 'societal challenges' and the 'industrial leadership' pillars. Most of the societal challenges such as health, food security or climate change cannot be solved without a strong participation of industry. On the Industrial Leadership pillar, businesses aim at speeding up the development of technologies and innovation in

the market. This would help resolve one of the most urgent challenges: Europe too rarely succeeds in getting its research results directly to the market, all too often having technologies developed in Europe and commercialised in other parts of the world.

Overall, participation of industry has increased from 30% of all participants in FP7 to 33% in Horizon 2020. The increase is mainly due to a higher participation of SMEs, showing renewed attractiveness of the framework programme for this industrial segment. However, in terms of funding assigned to industry (including SMEs), figures remain modest, moving from 25% in FP7 to 26.7% in Horizon 2020.

Public Private Partnerships (PPPs) and Joint Technology Initiatives (JTIs) running within Horizon 2020 bring strong added-value. These instruments enable much stronger collaboration along the innovation value chain. Projects promoted under PPPs and JTIs foster cooperation between different public and private actors and allow collaborative actions with ambitious research and innovation agendas. They are also key instruments to leverage the necessary funding needed for large-scale projects.

In 2015, over EUR 1 billion of funding was provided via JTIs and PPPs. It is expected that a total of EUR 22 billion of cumulative investment will be mobilised over a seven-year period, deriving from JTIs and PPPs: 8 billion from Horizon 2020 are expected to leverage EUR 10 billion from industry, and close to EUR 4 billion from Member States[2].

Industry is also strongly committed to the European Institute of Innovation and Technology (EIT). Almost 500 companies are currently engaged with the Institute. It remains the only European body that brings together the whole knowledge triangle and maintains a strong focus on entrepreneurship education.

Building the next EU framework programme

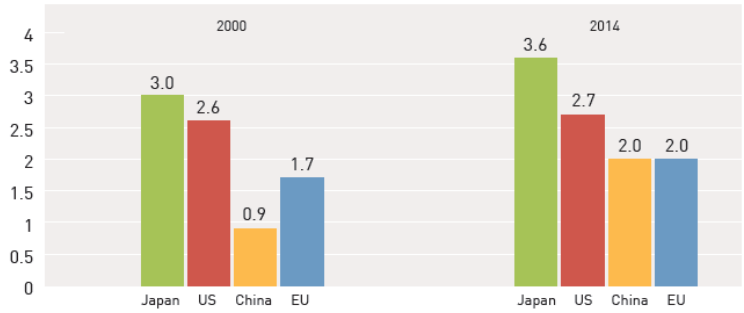
As stated above, the achievements of Horizon 2020 are considerable. They lay a solid foundation for preparation of the future framework programme. BusinessEurope hereby provides a first contribution to some of the strategic issues that are part of the debate.

Scaling-up the overall EU budget for research and innovation

Despite many efforts, the EU (2.0%) is still lagging behind countries like Japan (3.6%) or the US (2.7%). Furthermore, China is catching up rapidly in terms of R&D expenditures as a percentage of GDP. With the highest share of R&D spending coming from the business sector, which accounts for 65% of all R&D spending in the EU[3], it is extremely important to significantly scale up public spending both at EU and national level.

[2] Commission Communication "Public-Private, Partnerships in Horizon 2020: a powerful tool to deliver on innovation and growth in Europe. COM(2013) 494 final.
[3] First estimates of Research and Development expenditure, Eurostat, November 2016

Graph 1: R&D intensity as % of GDP in 2014



**2013 data instead of 2014 for US.*
Source: Eurostat

Keeping a strong focus on the Industrial Leadership pillar

Stability in research and innovation investments through a coherent policy is key to positively impact innovation and value creation processes. BusinessEurope strongly supports the continuation of the existing architecture of Horizon 2020 for the post-2020 period. The Industrial Leadership pillar in particular, through Public Private Partnerships and Joint Technology Initiatives, should be strengthened to speed up efforts in overcoming the valley of death and the gap between the demonstration and the commercialization phases. High technology readiness level (TRL) projects will need to have a more prominent role in framework programmes.

Pursuing financial support to secure active participation of large companies

From its start, Horizon 2020 has been shaped with the declared objective to not only contribute to research and innovation financing, but above all to incentivize a more collaborative approach. The programme is indeed contributing to innovation eco-systems, demonstrating that working together provides benefits to all actors involved in the value chain. Cross-border and multi-stakeholders collaboration are among the most significant achievements of Horizon 2020.

At a glance
In Austria, 256 Industrial Frontrunners ('Leitbetriebe') invest roughly €3 billion in R&D, which accounts for 32% of total R&D investment and even around 50% of R&D investment by the private sector. Industrial frontrunners also contribute to increased competitiveness by creating strong spill-over effects. Each Austrian Industrial Frontrunner interacts with an average of 800-1.000 SMEs.

This advancement also reflects the 'Open Innovation' agenda, which aims at moving from a traditional approach of funding research and development in isolated technology 'silos' to a more comprehensive engagement with the full innovation value chains. This more holistic approach was introduced to better address the technology development process and better to help translate innovative ideas into marketable solutions.

Such collaborative approaches imply a need for participation of all relevant stakeholders and, within the business sector, all types of companies. Competitive and growing SMEs and start-ups require strong industrial ecosystems where large and small companies collaborate. Therefore, support to SMEs and start-ups is key and should be strengthened, but this must not be at the expense of other industrial groups such as large companies. This approach is essential to maintain the current structure, enable large companies to contribute their expertise and resources, collaborate with other stakeholders and access funding.

Some of the main benefits of large companies being fully embedded in Horizon 2020 and the risks of removing their eligibility from Horizon 2020 funding are outlined below:

- **Risk-taking.** Having small, medium and large companies working together implies a shared risk model, minimizing liabilities for individual actors, especially smaller ones. In such a system, large companies often have the capacity to handle risks associated with innovative initiatives, along the whole technology readiness level (TRL) scale. Such mitigation effects enable higher chances of market-impact and commercialisation for innovative solutions from high TRL projects.

- **Diversity within consortia**. Horizon 2020 has already demonstrated the value it can contribute to building trust between universities, research and technology organisations (RTOs) and industry, from different Member States, lowering uncertainty of collaborating with new partners. In that respect, consortia are a highly efficient tool to overcome scepticism and capitalize on joint potentials. Diversity within consortia is the basis for excellence and impact. Inclusion of large companies in consortia gives the academic partners the possibility to better understand the innovation potential of their research.

  "Lowering cost of operation & maintenance for offshore wind farms is an extremely important challenge for the energy sector. Thanks to the H2020 Program, a number of companies have been able to join a consortium and work together to address this issue. Without this EC funding, there is no question that these companies would not have teamed up. ROMEO partners will both improve their existing solutions and share best practices. The concrete results of the project will increase companies' competitiveness, committing with EU efforts to cut CO2 emissions".

- **Mutual benefits**. Thanks also to their infrastructure and customer base, large companies bring consistent sets of data and industrial use cases that SMEs and start-ups would need to develop. They are essential for exploiting results of projects as they have the critical mass, power and market access channels. Both SMEs and large companies profit from their interaction: SMEs gain access to new established commercial channels, whereas large companies gain the opportunity to assess new solutions to improve efficiency and competitiveness.

- **Innovation leakage**. Large companies have resources for innovation activities, which often are spent independently from the availability of external funding. However, the latter is crucial as it orientates the choice of where to invest. For large (often global) companies, it can be a decisive factor on where to invest. A lack of European incentives would reduce Europe's attractiveness as a place to invest in innovation. This could in turn result in innovation leak-age, having fewer interests devoted to European projects and more resources allocated to non-EU projects or concentrated within a single Member State.

> *"Being a multinational company, we maintain a very strong foothold in Europe in terms of R&I activities. Nevertheless, we have technology centres already spread all over the word, especially in Asia and US. Should FP9 reduce the attractiveness to promote R&I activities in Europe, a good part of next advanced research programmes will be shifted to other regions of the world".*

Making the European Innovation Council fit-for-purpose

The European Innovation Council (EIC) has potential to maximise the impact of European funding schemes, by playing a strategic and advisory role in making financial instruments more easily accessible to innovators. The EIC could also promote synergies between different types of public funding schemes already put in place at local, regional, national and European levels, as well as with private finance. However, as a key requirement, the EIC should not jeopardize the simplification, which has already been achieved by Horizon 2020.

To make the process successful, implementation of the EIC should not split EU support for research and for innovation. It should avoid further fragmentation hampering public-private collaboration of universities and research and technological organisations (RTOs) – which are crucial in supplying competences - with companies, irrespective of their size.

The EIC should not introduce an extra governance layer on top of the existing instruments and their management structures, as for example within the European Institute of Innovation and Technology (EIT) and its Knowledge and Innovation Communities (KICs). An alignment of the EIC with parallel initiatives, e.g. those on start-ups, would also be desirable, so as to undertake a harmonized and coherent approach.

Continuing with grants for innovative research projects

The process of research and innovation is in its nature a risky one. It is a constant trial and error process aiming to achieve desired results. Therefore, funding tools should reflect equivalent levels of flexibility. For activities with high risk, grants and loans do not fulfil the same role and are not interchangeable. Loan financing, which presupposes a strong expectation of being able to reimburse, is therefore not suitable for research with high levels of risk, in particular for projects below TRL8. For such projects, grants are a much better suited financial instruments and should be preserved in the new framework programme.

Achieving synergies with other Union programmes

Increased synergy, coordination and strategic alignment with other EU programmes would help to maximise the impact of future framework programmes. In particular, the Seal of Excellence was introduced in Horizon 2020 as a quality label with high potential in supporting the search for alternative funding. However, it needs to become more effective and be further used as part of other funding schemes. This should include greater clarify its use in connection with regional and national calls, improved awareness among third financial parties (such as business angels) as well as collaboration with European financial institutions, notably the European Investment Bank and the European Investment Fund.

Handling access to research data with care

While acknowledging the potential benefits of making research data from public-sector research more widely available, caution is needed to avoid hampering incentives for public-private collaboration along the innovation chain. Open access should not apply by default to data from private-sector R&D performed in public programmes, nor from public-sector research performed in collaboration with industry or (co-) financed by industry. In these cases tailor-made approaches may be required, in which public and private partners contractually agree on a voluntary and case-by-case basis how data access should be managed. Further information can be found here.

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