DLR Position Paper

On the

Horizon 2020 Interim Evaluation

DLR

Executive Summary and Key Messages

Achieving the EU´s blueprint of smart, sustainable and inclusive growths and jobs, there is an essential need for continued investments covering the entire research and innovation chain from TRL levels 1 to 8-9. This starts from the support of novel ideas that emanate from basic research and continue via technology development, technology validation, and system demonstration up to the final development of innovative products, which can be successfully implemented in the market. This approach of continued and sustained support to investments in European R&D is crucial to address the grand societal challenges of our time like the provision of sustainable energy supply, sustainable, safe and secure transport and the mitigation of climate change.

Research organisations are essential actors in the European innovation ecosystem and their efforts and the results of their activities allows Europe to develop cutting-edge solutions to existing challenges. In this context, DLR asks to see EU investments in research and innovation as one of the key drivers to tackle the grand societal challenges such as mobility, provision of sustainable energy, climate, digitalization, connectivity and those allowing European citizens, industry and society as a whole to better face the future. Subsequently, DLR envisages a stronger commitment of all stakeholders towards a bright future of European research and innovation. This includes a stronger commitment of the European Commission as well as the Member States, and the European Parliament to a more extensive and large framework programme to succeed Horizon 2020 both in scope and envelope.

DLR continues to be a supporter of further simplification of rules and procedures for users and calls for an early agreement on the rules of participation of all research granting programmes allowing a more balanced approach between trust and control.

In detail DLR recommends for the last calls of Horizon 2020:

- To continue the approach of more precisely outlined WP topics as done in WP2016-2017;
- To apply within a two step approach a defined success rate for the first step which will allow a dedicated success rate of 30% to 40% in the second step;

With respect to the next framework programme DLR recommends:

- To continue the current structure of Horizon 2020 (Excellence, Industrial Leadership and several distinct societal challenges) also in the next framework programme and flank it with new instruments like the European Innovation Council (EIC);
- To support the entire research and innovation chain with appropriate instruments such as collaborative research, PPPs/JTIs, ERC, and MSCA. Instruments to support innovation like EIC especially using financial instruments (e.g. loans) should be set-up only in addition to the current support schemes;
- To ensure that usual national accounting principles are also accepted for EU projects;
- To better align programming and funding rules of the different EU-funds to allow for increased coherence and synergies;

Motivation

Looking at the magnitude of funding with nearly €80 billion and the number of proposals submitted Horizon 2020 is pushing Europe to a leading position on a global scale in terms of excellence in science, crossing national barriers and delivering innovation. DLR is and has been one of the major participants to European framework programmes (ranked No. 3 in Germany and No. 15 Europe wide). The portfolio that is covered by DLR activities encompasses activities such as

- European Research Council (ERC),
- Marie-Sklodowska-Curie Actions (MSCA),
- Research Infrastructures
- Industrial leadership (LEIT) incl. Space and Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing (NMBP)
- Clean, secure and efficient energy
- Smart, green and integrated transport
- Climate action, environment, resource efficiency and raw materials
- Secure societies – Protecting freedom and security of Europe and its citizens

The main reason for DLR to participate in European framework programmes such as Horizon 2020 is to collaborate with European / international partners to broaden and deepen DLR research activities over the entire span of Technology Readiness Levels (TRL). Furthermore, the international cooperation dimension of the programme is seen as key to achieving a critical mass to tackle grand societal challenges, to secure Europe´s global competitiveness and to foster multicultural education. Supporting only national or even regional programmes will not add value to this superordinate importance. Collaboration in research in Europe is essential to get access to and combine knowledge of European partners in order to ameliorate the results (and their exploitation) and avoid harmful fragmentation and duplication. Consistent with the spirit of the current framework programme Horizon 2020, DLR strives for interdisciplinary cooperation, e.g. between academia and the private sector to deliver innovation while acknowledging the particular role of research organisations.

Investing in research and innovation is essential if Europe wants to move forward, realising its goal to become a true knowledge-based economy and to keep track of global developments. The EU should continue to set the right example by dedicating a considerable part of the budget and efforts to the European Research and Innovation framework programmes in order to address societal needs and maintain European leadership.

Relevance and Implementation

Past and current framework programmes have created successfully the technological basis for a competitive and sustainable European industry by providing continuous support along the entire research and innovation chain from basic research, technology development, and technology verification up to system demonstration. In particular, this holds true for essential topics like aeronautics, transport and energy with long product development cycles and long product lifetimes. Assets and equipment in transport or the field of energy are often in operation for 30 years and more, so that support for development and improvement creates a strong demand for a continued and sustained European framework programme for research and innovation.

In the current system, the so called commercial "valley of death" in which companies fail to deploy the demonstrated technologies (TRLs 7 to 9) into a successful product has been identified as a crucial shortcoming of Europe's innovation landscape. The proposed European Innovation Council (EIC), which should be set-up in addition to the existing framework programme could complement and remedy a valley of death through loans, debt or equity. It is crucial that this additional funding instrument flanks the existing ones and does not weaken them by reducing their resources.

Recommendation: As the whole research and innovation chain needs to be funded in the years to come, the new funding sources for research and innovation like the European Innovation Council and the European Investment Bank (EIB) should be accompanied by maintaining the current three pillar structure of Horizon 2020 as they allow to support fundamental research, ensure industrial leadership and address societal challenges like health, mobility, energy and climate change.

In order to avoid silo structures between the various research and innovation stakeholders, the successful collaborative research instruments and in particular grants need to be maintained and strengthened. This will continue to foster strong cooperation between European universities, research organisations, SMEs and industry, ensuring effective knowledge and technology transfer between all the stakeholders involved. Therefore, the ERC, as well as EIC, should allow access and support to all research stakeholders. A successful European innovation system has to cover the entire research and innovation chain.

Collaborative research funding needs to be based on grants and simply cannot be supported by financial instruments. In order to nurture promising disruptive ideas and support their implementation, projects might come along which bear higher risks where grants are not always available. In this case industry could be encouraged with higher funding rates in case universities and research organisations are subcontracted.

Recommendation: Support the entire research and innovation chain with appropriate instruments such as collaborative research, PPPs/JTIs, ERC, and MSCA. Instruments to support innovation like EIC using financial instruments (loans) should be set-up only in addition to the current support schemes.

With respect to implementation DLR recognises that several improvements have been established for Horizon 2020. Using the Participant's Portal as single point of entry and a place to gather information and the legal documents is a major improvement. This includes also the common registration using PIC number and relevant central information on the organisation.

Basically the funding rate applied in Horizon 2020 is manageable at DLR. However, applying this rate also for the coordination of a project leads to the need of cofunding admininistrative work with own resources foreseen for research, which is a disadvantage in particular for smaller entities like SMEs compared to the situation in Framework Programme 7 (FP7).

Recommendation: In order to foster simplification for participants the application of usual national accounting principles should be accepted in the next framework programme. A better financial support for coordinators would encourage also smaller entities to take over the leadership in projects.

With respect to the implementation of calls for proposals in Horizon 2020 DLR and its partners experienced in the first calls dramatic low success rates. In several calls the success rate in the second stage of the chosen two-stage approach was lower than the success rates in the one stage approach in the former FP7 programme. This holds true in particular for transport and energy but also in some parts of the space program. Amongst others, the most significant reasons is the lack of focussed prescriptive topic descriptions. This resulted in another negative aspect which encouraged many applicants to submit a proposal that only addresses marginal parts of the call as its true scope and intended objectives are imprecise. Furthermore too many proposals were positively evaluated in the first stage and given access to the second stage.

For WP2016-2017 DLR experienced a major improvement, as the topics in the work programme were formulated more focused, so that less but much better fitting proposals were sent in. Furthermore, the success in the first stage of the two stage calls was limited so that for the second stage a dedicated success rate of 30% to 40% could be guaranteed.

The lack of focus in topic descriptions resulted in a difficulty to find appropriate evaluators covering the entire potential scope. As a consequence, the quality of evaluators' comments and feedbacks to the proposers decreased compared to FP7. With the precisely outlined WP2016-2017 topics more adequate evaluators could be selected, which improved, according to DLR's experience, the quality of the evaluation and the feedback to proposers.

In addition, a more focused formulation in the descriptive topics for the future calls of Horizon 2020 would allow a coherent implementation of European research and innovation strategies. Besides the formulation of topics in future calls, DLR asks for a continuity of reviewers over the first and second stage instead of substituting the reviewer teams after the first stage and appointing new ones that have a different view on the quality of a proposal.

The frequency of calls for proposals with a two-stage approach including those from Joint Undertakings is rather challenging as DLR experiences a permanent phase of application. Along with an increased amount of effort that needs to be put in a two-stage proposal compared to a former single-stage proposals DLR calls for a reduction of work load by better synchronising calls for all Horizon 2020 instruments.

Recommendation: DLR supports to continue the approach of more precisely outlined WP topics. Within the two step approach a well-balanced acceptance rate for the first step is needed to ensure a dedicated success rate of 30% to 40% in the second step.

Currently in the 3rd year of Horizon 2020 DLR experienced the 6th version of the Model Grant Agreement (MGA), and the 8th version of the Annotated MGA respectively. In particular smaller organisations like universities or SMEs are not capable to follow these kinds of quick changes of administrative boundary conditions. Even for larger research organisations like DLR these short-lived modifications cause additional bureaucratic and financial burden and hinder the proper conceptualisation and implementation of IT tools and consistent internal processes. DLR also experiences a high frequency of 2nd- or 3rd-level audits for FP7 projects; the number might double with the start of the Horizon 2020 ones. The latter, however, concern financial statements that had to be prepared on a quite precarious basis, as important issues have only been clarified in the course of 2016. Hence administration, from the beginning of the framework programme, needs sound boundary conditions to set-up once appropriate processes for a longer period of time.

The use of a single Model Grant Agreement including all options is not a simplification in many cases as the complete document needs to be always handled even if large parts are not relevant in the context. The previous set-up in FP7 with a light Model Grant Agreement with specific annexes, to be added when needed was simpler to be managed than the current one.

Due to the fact that project monitoring is handled by executive agencies the overall quality of reviews and reports suffer significantly. DLR experienced that on-time delivery of reports is seen as more important by the agencies than the proper scientific content which would be submitted belatedly. This reveals that there is hardly any interest in the quality of projects' outcome. Projects are rather seen as bureaucratic effort by the agencies and decisions are compromised based on administrative issues.

DLR´s experience as a member/ associate in different Joint Undertakings also shows that, even though they have administrative points in common, the actual handling of issues like the application of reimbursement rates or the evaluation of in-kind contributions differs considerably from JU to JU and binds resources. Effort that could be dedicated to actual research has to be spent different in order to understand administrative arrangements.

Summarising the trend involving executive agencies, DLR does not see any added value of it towards the goals of Horizon 2020. Quite contrary to the EU´s blueprint to foster growth and innovation potential, the management of parts of Horizon 2020 by agencies leads to an institutional separation. DLR is experiencing a lack of information exchange between the agency and the European Commission. Hence, identification of successful projects and the granting of promising follow-up projects are hampered as a consequence.

Coherence

Coherence of Horizon 2020 with European R&I policies/strategies

DLR sees former FPs as well as Horizon 2020 as the main European instrument to implement EU policies and European research and innovation strategies, like Strategic Research and Innovation Agenda (SRIA) developed by ETPs and other fora. In order to ensure a coherent implementation of European research strategies via the FP a structured approach like the current set-up of societal challenges (e.g. transport incl. aeronautics, energy, security) is necessary.

Research in different pillars such as energy or transport faces different requirements and determining factors. Appropriate support actions need to be developed and implemented in order to meet these requirements. DLR promotes a coherent distribution of key subjects over the pillars and a coordinating instance that ensures alignment of this distribution in coherence with EU strategies such as the Strategic Transport Research & Innovation Agenda (STRIA), white papers and other agreed research and innovation strategies. DLR insists that transport and mobility are understood as distinctive priorities that need to be continued in Horizon 2020 and its successor programme.

As in particular a safe, secure, sustainable and affordable transport is an important basis for a growing European economy, limiting research and innovation only to decarbonisation aspects will hamper the coverage of all needed aspects and at the end will hamper economic well fare of the European Union.

Synergies with other programmes

Even though the current legislation of the different EU Funds, such as Horizon 2020, Erasmus+ and the European Structural and Investment Funds (ESIF) allow for synergetic application, the reality is that the different funds hardly correspond. The different funds need to have their own purpose and goal, but should be perfectly aligned with one another, to allow for synergies wherever possible.

Furthermore, despite Horizon 2020 introduced synergies with Structural Funds, one need to recognise that the governance, process and regulations are different, and thus synergies are not yet really in place.

Other programmes containing some research and innovation activities (ESIF, COSME, …) bring a blurred message and a reduced overall efficiency due to risks of duplication and complexity.

DLR sees a lack of coherence between the contents captured in white papers and the actual design of instruments that cannot reach those targets (e.g. white paper transport is promoting multi modal transport, but JTI Shift2Rail as key instrument for rail research lacks the subject of railway stations and multimodality).

Recommendation: Better aligned programming and funding rules of the different EU-funds to allow for increased coherence and synergies.

Efficiency and Added Value of Horizon 2020 to Europe

Horizon 2020 has put Europe on the map globally, not only as a continent with excellent universities and research organisations, but also as a reliable, innovative funder of research and innovation. Notable outputs from the consecutive framework programmes have proven the drive for excellence amongst researchers from different countries and different disciplines. Staying on track, sticking to the principle of a competition in excellence and collaboration amongst European countries and also international partners when appropriate will create value for Europe and pave the way for future jobs, economic growth and social wellbeing.

Summary of recommendations in view of the next framework programme

As the whole research and innovation chain needs to be funded in the years to come, the new funding sources for research and innovation like the European Innovation Council and the European Investment Bank (EIB) should be accompanied by maintaining the current three pillar structure of Horizon 2020 as they allow to support fundamental research, ensure industrial leadership and address societal challenges like health, mobility, energy and climate change.

The entire research and innovation chain needs to be supported in a balanced way by appropriate instruments like ERC, collaborative research, PPPs/JTIs as well as support to research and test infrastructures and Marie-Curie Sklodowska Actions.

DLR supports to continue the approach of more precisely outlined WP topics. Within the two step approach a well-balanced acceptance rate for the first step is needed to ensure a dedicated success rate of 30% to 40% in the second step.

For the purpose of increased coherence and synergies, alignement of programming and funding rules of the different EU funds should be improved.

In order to foster simplification for participants the application of usual national accounting principles should be accepted in the next framework programme. A better financial support for coordinators would enable also smaller entities to take over the leadership in projects.

DLR at a glance

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project management agency.

DLR has approximately 8000 employees at 16 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Goettingen, Hamburg, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Stade, Stuttgart, Trauen, and Weilheim. DLR also has offices in Brussels, Paris, Tokyo and Washington D.C.

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