



DLR Position Paper

On

Missions in the Research and
Innovation Framework
Programme 9 (FP9)



Motivation

Both Interim Evaluation of Horizon 2020 and the report of high level group chaired by Pascal Lamy express a high demand to maximise the impact in the next framework programme for research and innovation (FP9). Their intention was to address the observed shortcoming in the last stages of research and foster commercialisation.

In consideration of the pressing global challenges and the political need of research to proof its purpose, its effectiveness and added value to society, the concept of mission has been introduced by the European Commission as key feature of the future framework program (FP9). Its goal is said to address these goals while promoting impact and commercialisation of research. The concept of mission is described in the report by Professor Mariana Mazzucato. This position paper reflects DLR's view on the report and in particular on the intended implementation of mission in FP9.

The scope of missions

According to the Mazzucato report, missions are supposed to link broad grand challenges with specific research projects covering various areas of interest and cross-sector while accepting high risk. In general, DLR welcomes the intention by the European Commission to pursue EU-priorities which take into account the Sustainable Development Goals. Doing so, DLR sees a strong need to define a holistic approach on how to mobilize efforts for their achievement at top European Union level.

The Grand Challenges, e.g. "Climate Change", need to become one of the topics with highest priority agreed on high political level by all European Member States. Efforts in each mission contributing to this overarching goal have to be streamlined amongst all member states, the industry, the public, the research communities as well as the relevant Directorates-General, agencies and executive bodies.

EU institutions, in particular the European Commission can provide a platform for governance and for stocktaking, bringing together dispersed information and assessments. The research and innovation framework programme should derive its goals from top EU-priorities and needs to be flanked by dedicated instruments that provide all means of roll out and implementation.

DLR doubts that broad missions, e.g. "100 Carbon Neutral Cities by 2030", funded only by the next framework programme for research and innovation **are capable of achieving a significant and measurable impact towards Global challenges (SDGs)** in terms of implementing the necessary actions. The future research and innovation framework programme (FP9) is one key contributing instrument that should inherit those goals and offer enabling scientific and technological innovation. **It is not up to research and innovation to pursue and achieve implementation.**

DLR clearly sees a need to distinguish between research and innovation and implementation. The latter is the effort needed to rollout the developed technology to a large scale. This distinction is particularly crucial in missions whose impact greatly depends on a mass uptake of technology (like “Energiewende”) and require significant finances to strut them (like “Man on the moon”). In this regard the **Energiewende** can serve as a good example to implement a political motivated shift with significant citizen support and participation, but it **is not applicable as a blue print for a research and innovation related mission embedded within a framework program**.

DLR sees a strong need to make a clear distinction between research and innovation on the one side and implementation and legislation on the other side. In this regard a clear distinction is needed between what can be achieved by a research and innovation program and what needs to be addressed by additional instruments dedicated to implementation and legislation. R&I is responsible for technological developments, their market uptake is to a great degree depending on factors that lie outside the scope of research. **DLR strongly advises against using FP9 dedicated budget for implementation as there are dedicated tools on EU-level for this purpose**, e.g. European Fund for Strategic Investment, Structural and Investment Funds, Connecting Europe Facility and others.

The role of mission as part of FP9

With regard to the report by Mariana Mazzucato DLR gives the following recommendations on the role of missions as part of FP9:

- DLR welcomes missions as a substantial instrument to increase the impact of European research and innovation and hence provide real European added value.
- DLR sees that missions can grasp the public imagination and nurture a spirit of European collaboration amongst different disciplines, stakeholders and sectors.
- DLR also acknowledges that a meaningful budget for missions is clearly needed for them to succeed.
- However, focus must not entirely be shifted towards higher TRL research and innovation.

With missions being part of FP9, it is key to keep the well balanced approach between the different TRL levels and topics. The other segments of research and innovation, in particular basic and applied collaborative research need to be strengthened in the same degree as impact is pursued in missions and an extra effort towards market-maturity is undertaken. **It is crucial to maintain the whole TRL chain providing continuous development through the entire TRL chain to prepare tomorrow’s innovation.**

DLR agrees that in order to achieve truly innovative approaches that go above and beyond existing knowledge, co-definition of ambitious missions and roadmaps with academia, industry representatives as well as the integration of key collaborators along the value chain is essential.

Missions need to encompass a portfolio of projects with bottom-up approach. Their results should lead to technical maturity and allow for deployment. This approach facilitates strong governance and portfolio management which is essential to achieve tangible impacts that boost the European economy. DLR wants to clarify that within the structure of a mission **a significant part of the creative interaction of cross-sectorial and trans-disciplinary science needs to be reserved for low TRL activities.**

DLR welcomes the five key criteria for selecting missions of the Mazzucato report. From our point of view focus should be laid on a balanced mix of bottom-up and top-down solutions that are open to be addressed by different development paths, achieved by cross-disciplinary and cross-sectorial collaboration with both ambitious and realistic research and innovation actions centred across the entire TRL chain. Setting specific targets and timing is essential to determine success, however, research activities can hardly be predicted and the added-value cannot be determined in binary ways. In consequence, timeframes needs to be tailored to allow processes to grow and targets should allow for quantification against a baseline scenario, i.e. whether a certain percentage reduction against a baseline has been reached.

DLR asks for **clear distinction between the role of research to provide knowledge, technologies, solutions and market maturity and the implementation** as exemplified in Figure 1.

DLR appreciates the idea of missions driving the research and development with FP9 towards a specific goal. **The essential role of missions in FP9 is to develop the technical foundations by means of research and innovation to address the high-level goals.** This approach increases the knowledge, fosters mature technologies and drives innovation to commercialisation on a specific topic. Once technologies reach the maturity of commercialisation the focus needs to be on implementation. With the above mentioned distinction in mind it is obvious that **implementation is not part of a framework program** for research and innovation. Hence missions embedded in such a framework need to be flanked by implementation programs that take the burden of scaling up technologies to a degree that their outcome is measurable.

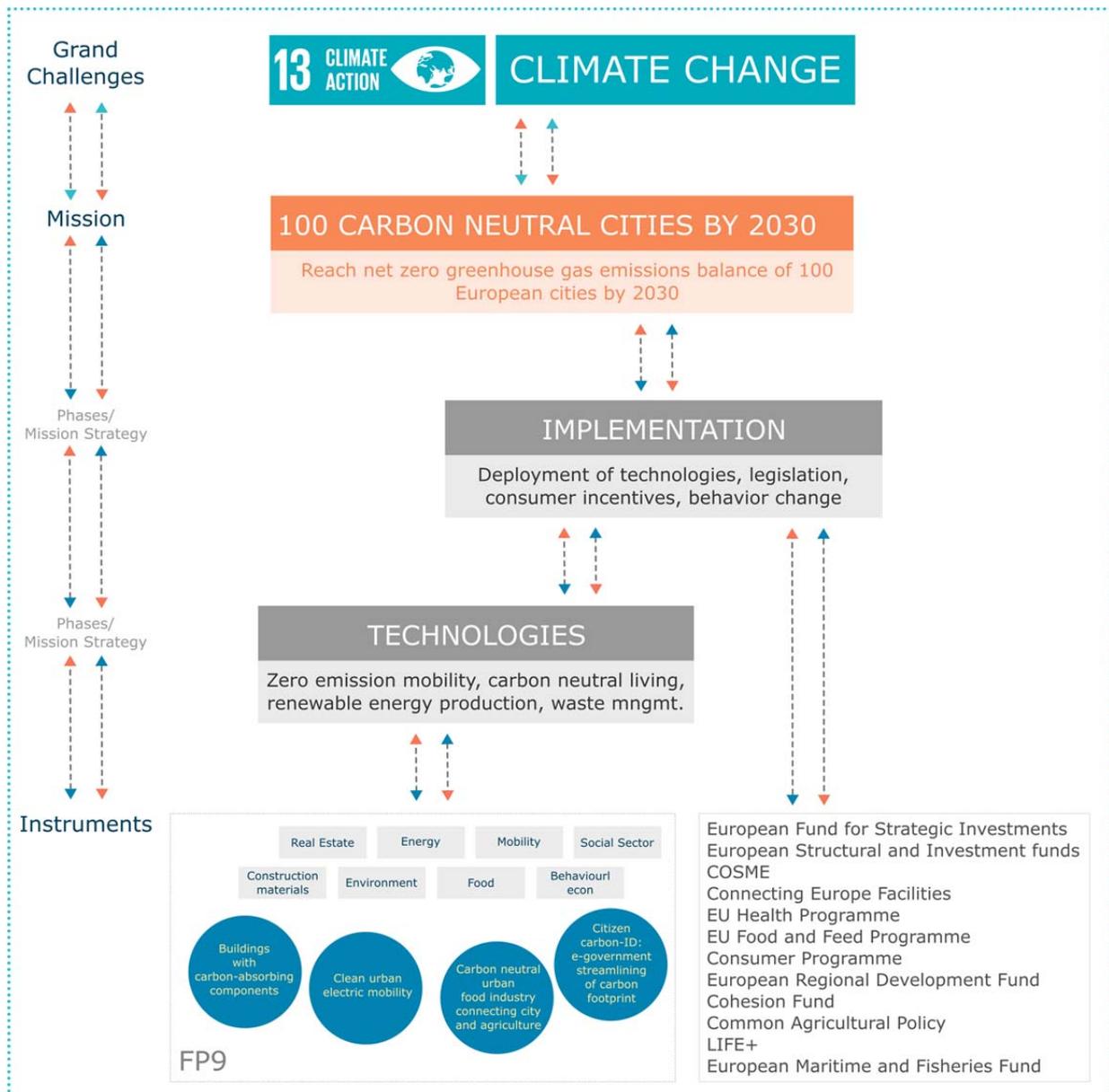


Figure 1 Missions as part of FP9

Implementation is significantly supported by the instruments that are dedicated for this purpose, such as EFSI or ESIF, as well as the instruments that can support this process on a thematic level. In the above mentioned example the food industry, EU Food and Feed Programme, CAP and EMFF can take their stake to drive contributions.

This example shows how the orchestration of EU-instruments can make proper use of FP9 results and how European added value can be achieved. It also demonstrates a clear distinction between the role of research in missions and offers a solution how to overcome the lack of implementation.

Finally DLR offers its specific capabilities as research and innovation center, German Space Agency and programme management organisation to help in defining and implementing various broad mission approaches as outlined above for the sake of Europe.

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 one of the nation's largest project management agency.

DLR has approximately 8000 employees at 20 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Bremerhaven, Dresden, Goettingen, Hamburg, Jena, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Oldenburg, Stade, Stuttgart, Trauen, and Weilheim. DLR also has offices in Brussels, Paris, Tokyo and Washington D.C.

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