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Reflections on *missions* in the European ninth Framework Programme for RTD

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Colophon

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DEPARTMENT OF
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Introduction

Many EU countries' position papers, reports by advisory groups and high-level committees advocate what is called a "mission oriented policy" for the ninth European Framework Programme on RTD (FP9).

How exactly mission oriented R&I policy should be understood has gradually become clear with the recent publication of papers and reports. In particular, Mariana Mazzucato has taken the lead in constructing the theoretical framework of a mission oriented policy. Her work sheds light on the characteristics and requirements of a mission. We refer the reader to her publications¹ for more information. Also the ESIR² Memorandum 'Towards a mission-oriented research and innovation policy in the European Union' is an inspiring document.

In order to contribute to the discussion on how missions could be implemented in the 9th framework programme, the Flemish administration and its stakeholders want to provide some reflections on these matters, being modest in their ambition as many different, potentially conflicting perspectives influence the debates.

The starting point of our reflections is the Flemish position paper on FP9³, of which certain elements are now more elaborated, as well as informal discussions with Flemish stakeholders and information provided at various informal workshops and presentations.

This paper presents general principles that should guide the discussion on missions (section 1), followed by a number of concrete suggestions for their implementation (section 2). In particular, we provide reflections on the governance of missions (section 2.1), detailed criteria to select missions (section 2.2) and the execution of missions (section 2.3).

¹ See Mazzucato, M., *Mission-Oriented Research&innovation in the European Union. A problem-solving approach to fuel innovation-led growth*, 2018.

² ESIR stands for the 'Economic and Social Impact of Research': a group of experts set up by DG RTD of the European Commission in the fall of 2017. The memorandum was published in December 2017.

³ http://www.ewi-vlaanderen.be/sites/default/files/bestanden/fp9-fl_position_paper_finale_versie_1.pdf

1 Guiding principles for a mission-oriented research and innovation policy approach

Flanders sees a lot of opportunities in a future European mission oriented research and innovation policy approach, based on the following guiding principles:

- Missions should set the direction for transformational change, needed to address the great global societal challenges of our time, and at the same time should facilitate the process of discovery by enabling bottom-up experimentation and exploration.
- Mission should play an intermediary role between grand challenges, based on the sustainable development goals, and specific research and innovation projects. Missions should therefore be 'challenge-led' and will require multiple actors to work together towards solutions across disciplines and sectors in new ways.
- Missions should focus on the whole innovation cycle with its complex systemic interactions between basic and applied research, development, innovation, and diffusion, leading to various forms of knowledge spill-overs.
- Missions can go beyond technology and include infrastructural, legislative and behavioral change.
- Missions should be set up in areas where EU-added value is greatest and where the benefits of economies of speed, scale and scope can be reaped. With Europe setting the direction, they can also help to (partially) align national and regional research and innovation policies.
- Missions can give more weight to the demand side and users in the co-design and co-development of innovative ways to address global challenges.
- Missions can be vehicles to address the currently fragmented nature of Europe's public research and innovation policy and to search for new synergies with other European public financing instruments (e.g. Structural Funds, EFSI, ...).
- Missions should be set in close interaction with public and private research communities at European, national and regional levels and with civil society to ensure legitimacy and long-term resilience in the goal-setting. Transparency in decision-making and governance however remains key to the success of missions.
- Missions should make use of the 'MATURE framework' (i.e., measurable, achievable, transformative, understandable, research relevant and engaging).
- Missions can make use of a mix of policy-instruments (mostly funding, financial, and legislative) structured along different technology readiness levels (TRL's).
- Missions can build on the concept and experience gathered with the Horizon 2020 focus areas as a starting point, but additionally need an active monitoring process and directionality steering.
- Missions need mission-oriented organisations that are in charge of the co-design and implementation process and that are accountable for the results.

Before we provide our detailed suggestions for the governance, selection, and execution of missions, we echo some key principles forwarded in the Flemish position paper on FP9 and which relate to the missions.

- Flanders is in favour of an evolution in the next framework programme, not a revolution.
- Excellence should always remain the leading principle when assessing concrete proposals to execute a mission.
- The entire innovation cycle, with a balance between research and innovation projects, should be addressed in missions. The main focus of the missions should be on funding research and innovation activities, from bottom-up, frontier research to more close to market innovation actions.
- Missions can be at the heart of a modified pillar of the Horizon 2020 structure, but cross-pillar flows of knowledge should be stimulated as well. In addition, in FP9 sufficient “space” remains necessary for regular, smaller scale, cooperative (bottom-up) project and individual grants, subsidies or loans (inside and outside the context of a mission) in accordance to the work programme as well as for other larger scale (non-mission) initiatives.
- Simplification and rationalisation should lead to a more inclusive funding landscape. Missions should not complicate the funding landscape.
- FP9 must remain sufficiently attractive for applicants (both content-wise and in terms of the success rate) and newcomers (by lowering/removing barriers)
- Given the need for multidisciplinary action to solve complex interconnected societal challenges and the societal embeddedness of a mission, the integration of SSH (Social and Human sciences) across the entire lifespan and projects of a mission is of utmost importance.

2 Suggestions for implementation

2.1. Governance

Ownership and management

In order to guarantee a maximal degree of openness (from the perspectives of information flow and access by interested parties) and transparency, as well as to improve the coherence between the various activities of FP9 (including those in the context of missions), we prefer the Commission to take up the ownership and management of the missions. Thereby, one could imagine a 'Missions unit' in DG RTD with newly appointed high-profile 'mission-owners' with a political coordination and communication role that act as ambassadors for the cause.

A progress monitoring body is critically needed for the success of a mission, in particular as a mission combines a bottom-up solution discovery/delivery by various actors with a given directionality towards clear targets set as a result of a public consultation and political validation. Even though the end goals should be clear, the actors themselves decide in which way they contribute to achieving these goals. Hence, a strong ownership of the entire endeavour is key to success.

Lifespan of missions

Due to its ambition to induce systemic changes, a mission should span a sufficient number of years to reach its goals. Consequently, the mission governance structures and framework programme itself should last long enough to cater for the lifespan of the missions. Therefore, Flanders favours that FP9 runs for more than five years, by preference ten years. In addition, a mission has to start with a sufficient level of scale (in terms of human and financial resources, ambition, wealth of activities, ...). This implies that only a limited number of missions can be funded within FP9. Co-funding by member states and associated countries might allow to increase the number of missions, but necessarily the number of missions cannot be very high.

The lifespan of an individual mission is to be determined at the start with a clear sunset clause (not only for the end of the Commission funding) and intermediary goals, which can be easily monitored. Depending on the life span of a mission, one or more important milestones could be defined that could trigger its "re-orientation" or even, in a worst-case scenario, a "no go" decision about the continuation of a particular mission.

We support the idea of Mazzucato that sufficient flexibility is needed within a mission regarding the support to projects.⁴ Nevertheless, one has to respect certain contractual rules, in particular regarding the hiring and financing of researchers in academia, to avoid an all too sudden reduction of funding.

Portfolio management

Portfolio management from a helicopter perspective should improve the exchange and re-use of project results within a mission and also across the various programmes lines and FP pillars. Nevertheless, links between activities in these pillars and the missions will evolve naturally by introducing a portfolio management and can be facilitated by inviting applicants to refer to a mission where relevant. Furthermore, calls of co-funds and partnerships outside the framework programme could be related to topics treated by missions.

⁴ Cf. the Mazzucato report p. 18

The “focus areas” and “horizontal calls” of Horizon 2020 are a good start to “interconnect” multiple calls within a mission and across different pillars, but should nevertheless be improved upon. The current focus areas, in our view, insufficiently support directionality in a mission oriented framework. Projects within a mission should conclude with close-out meetings⁵ that summarise the results and outcomes of the project for the mission. An active management of results and activities is needed to better ‘steer’ towards the achievement of a mission’s goals. Likewise, portfolio managers are needed that have the expertise to understand and overview the research and innovation activities undertaken within the mission and across the relevant calls of the framework programme (cf. RTD mission unit).

We understand that the Commission is considering installing a “mission board”. We would expect this mission board to function in the way as outlined here. A team of mission officers ensures proper programme management as well as monitoring of the individual projects’ results and their contribution to the mission goals.

2.2. Criteria for selection of missions

At this moment, the Commission states that it will focus first on the modalities to select and implement missions. Selecting topics for a mission will be done later. Consequently, it is too early to propose a very detailed and exhaustive set of criteria to select proposals for missions. Nevertheless, the characteristics mentioned earlier do provide inspiration for some criteria – albeit still rather on an abstract level.

Missions can be defined according to a procedure that is specified in the next framework programme. The concrete missions should be designed in co-creation with member states, stakeholders, citizens groups and citizens.

The impact of a mission should be clearly described in terms of societal impact (economically, socially, environmentally,...), and by means of sharply defined goals that allow to define SMART⁶ indicators for monitoring. Economic impact, competitiveness, scientific or technological progress alone are not sufficient. Preferentially the proposal for a mission contains a summary of an ex-ante feasibility study that shows that the mission has a relatively high chance of achieving its goals. Of course, the evaluation process will have to strike a balance between the innovating and challenging aspects and the achievability. Appealing and highly interactive outreach activities (more than the usual website and flyers) should be applied to “spread the message”.

The JIIP⁷ survey also included some elements that may be regarded as criteria if reformulated in a proper way:

- *A focus on solving the societal issue, not emphasising competitiveness or economic impacts*
- *Strong (new) governance structures and programme management*
- *Nomination of high-profile ‘mission owners’ (‘ambassadors’ for the cause) with a political coordination and communication role*
- *A close and deep involvement of industry in proposing, deciding upon and monitoring missions*
- *Putting in project evaluation the goal of a strong contribution to missions clearly before other EU cross-cutting objectives*
- *Requiring cross-border collaboration within projects*
- *Requiring interdisciplinary approaches within projects or within clusters of interacting projects*

⁵ Close-out meetings are applied by the JTI IMI2. During a close-out meeting, an inventory is made of the achievements of a project with a specific eye on which results have a potential for further valorisation and/or development.

⁶ Specific, Measurable, Assignable, Realistic, Time-related

⁷ The Joint Institute for Innovation Policy. The JIIP (TNO, VTT, Tecnalia, Joanneum Research) and DTI and VVA performs a study on mission oriented R&I policies, including a stakeholder survey (already closed) on behalve of DG RTD.

- *Mission goals (e.g. a 40% reduction of CO2 emission of the transport sector by 20XX) being strongly supported by hard regulation and standards*

In addition, we propose some ideas for (other) criteria:

- ✓ Does the mission description contains an intervention logic that clearly specifies:
 - how mission activities and targets connect with the EU post 2020 strategy, societal challenge(s), SDG(s) or other global problem(s)
 - which tangible effects a mission will achieve within a certain time span with which range of complementary instruments
 - how various types of actions, activities, instruments, ... will be deployed in a bottom-up style to maximally combine and explore various alternative routes towards the target(s);
 - by which SMART indicators progress towards the targets can be monitored (i.e. according to societal readiness levels)
- ✓ Can the intervention logic be translated in engaging messages that are easily understandable by the EU citizens and dissemination by appealing outreach activities ?
- ✓ Is the mission ambitious enough (leverage effect) to have a demonstrable systemic effect and impact on society as a whole and on the life of individual EU citizens ?
- ✓ Can the mission adapt in a flexible way to changing opportunities and demands of various nature but still remain in line with its original goals ?
- ✓ Does the mission encompass different technology sectors, research domains, types of societal actors, many EU countries in all stages of the innovation chain ?
- ✓ Are cities, citizens and other societal stakeholders involved and committed in the governance structure and/or actual activities, including co-design and co-creation ? Are the principles of Responsible Research and Innovation adhered to ? Are citizens also involved in the progress monitoring and evaluation of the mission ?
- ✓ Does the mission have one or more sufficiently strongly committed actors (from industry or government) who can act as anchors of an emergent innovation ecosystem and can create new markets ?
- ✓ Does the mission allow for a multi-level and multi-functional governance structure that is able to combine a bottom-up disruptive approach with a directionality towards the targets ?

Also, the guiding principles as put forward in the Competitiveness Council conclusions⁸ can be used to assess proposals for missions. In particular, openness, transparency, EU added value, and flexibility are highly relevant and should be taken into account when selecting proposals for missions.

It might also be worthwhile to look up the past evaluation reports of the FP7 Integrated Project instrument and/or the Horizon2020 European Joint Programme CoFund and FET Flagships to learn best practices, but also to avoid known pitfalls when setting up a mission oriented policy. The EC should ensure for instance that the mission is not designed or executed by a closed club of beneficiaries (see above).

Once a mission has been defined, the regular process to draft scoping papers and work programmes can start. This allows the launch of regular project calls that fit into the strategic work programme of a mission and allow for a bottom-up concretisation of the work programme and deliverables by means of project proposals. It is important that for each mission a portfolio of diverse projects is selected, focusing on different aspects of the mission, focusing on different stages of the research and innovation process,

⁸ 01/12/2017

with consortia of variable sizes, including researchers from different disciplines (including SSH) and societal actors, end users and business. This is only achievable if a solid evaluation process is developed with experts from different fields that are well briefed and supported by the European Commission. The Commission would be able to combine its various instruments (funding, financial, legislative, ...) to serve the mission's purpose. For applicants, there would probably be hardly any change in the way to submit proposals.

2.3. Execution of missions

Mazzucato stresses that public institutions in charge of mission oriented policy i.a. need to become willing to experiment with bringing in new expertise by e.g., establishing new forms of collaboration with third sector organisations to pool and steer expert knowledge.⁹

The Competitiveness Council, in its conclusions of December 2017 calls on the Commission together with Member States to explore developing a strategic, interdisciplinary mission-oriented approach [...], which would be implemented by a portfolio of complementary instruments, including partnership instruments.¹⁰

Below, we describe some instruments that could play a role in the implementation execution of a mission. By execution we mean delivering the calls for proposals and funding projects that contribute to a mission's objectives. It in no way means ownership or management of a mission (cf. section 2.1).. The 9th Framework Programme will be the main instrument funding projects that contribute to mission objectives. It will play an exemplary role and inspire other funders to do the same.

- In that sense, the *EIT-KICs* could participate in and contribute to a mission as well.¹¹ A KIC covers “subparts” of societal challenges, unites actors from the knowledge triangle, combines funding instruments with financial ones, combines public and private money, facilitates incubators for start-ups, covers many member states and associated countries with a dedicated widening programme (KIC-RIS), drafts SRIAs with goals and a directionality, and has a governance structure already in place. However, societal stakeholders should be better involved in co-creation processes and be co-drivers of demand. In general, the recommendations of the auditors' report¹² must be dealt with. Coherence and consistency (no overlap) with the FP9 work programme and, in some cases also the JPIs, must be assured.
- The remainder of the partnerships after the planned rationalisation of the partnership landscape are well placed to contribute to missions' objectives. Partnerships are able to organise (bottom-up) calls for smaller cooperative projects and have the capacity to focus on more strategic issues (longer term plans) and diverse activities specific to the mission at hand (e.g., cohort studies, foresight study) that might fall outside the FP instrument tool box. Nevertheless, any partnership has to comply with the guiding principles, in particular *openness* and *transparency*, as defined by the Competitiveness Council and the criteria elaborated by the ERAC ad hoc Working Group on partnerships. Note that, for reasons of *simplification*, efficiency and openness to newcomers (lowering participation barriers), the missions should not complicate the landscape even more or make it more difficult for potential applicants to figure out where their proposal fits best or has the best chance on acceptance. The more partnership rules comply or conform with the FP rules, the simpler it becomes.
- In order to experiment with the effect on society, living labs, or even more general a *pilot installation or demonstrator site*, may also become a very important “tool” in the context of a

⁹ <https://data.europa.eu/doi/10.2777/360325>, p.19 ff.

¹⁰ <http://www.consilium.europa.eu/media/31888/st15320en17.pdf>, p.7

¹¹ Cf. the RISE group paper, p.14 as well as the COM(2018) 2 final report (p.10) that explicitly states that “possible R&I missions could be used to structure the KICs so that they have clear objectives, communicate better and have more impact.”

¹² https://www.eca.europa.eu/Lists/ECADocuments/SR16_04/SR_EIT_EN.pdf

mission. Next to using a living lab or pilot installations as a real-life testbed, it can also function as PR and dissemination tool to make a citizen aware of potential benefits of R&I on his/her personal life. In that way, it might be possible to create a new demand and to educate potential customers for a future market, which is what Mazzucato defines as “tilting the playing field in a direction”. This implies that “results” are available as open data or open source and can be shared with citizen scientists or for the purpose of user driven innovation (cf. the policy theme of responsible research and innovation). Also thanks to their regional embeddedness, the impact of the FP9 on regional R&I policy (e.g; smart specialisation) might become more important than currently is the case.

This position echoes from the overall FP9 Flemish position paper¹³ where we advocate the creation of large-scale pilot and demonstration infrastructures, possibly supported by financial instruments and possibly co-financed by industry. Such infrastructure could also ensure a tighter involvement of regional governments and actors. These pilot and prototype testing infrastructures can also function as platforms for open and citizen driven innovation, where knowledge circulation is encouraged.

¹³ See also http://www.ewi-vlaanderen.be/sites/default/files/bestanden/fp9-fl_position_paper_finale_versie_1.pdf, p. 25

Conclusion

Flanders is in favour of a European 'challenge'-led mission oriented approach in areas where EU-added value is greatest and where the benefits of economies of speed, scale and scope can be reaped.

In this document, we have presented some guiding principles for a European "mission oriented policy". Subsequently, we have provided specific suggestions on the governance, the criteria for selection and the execution of missions.

We hope to have provided a meaningful and useful contribution to these debates that pave the way for the new European framework programme on RTD.

Annex

This position paper prepared by the Flemish department of Economy, Science and Innovation (EWI) is the result of the joint effort of many individuals whom we would like to thank for their effort and involvement. In particular, the members of the thematic team on internationalisation and the members of the working group 1 (on Horizon 2020) of the EWI stakeholder platform on international policy.

This stakeholder platform brings together civil servants from the relevant Flemish governmental departments and agencies as well as representatives from all types of stakeholders (academia, industry, civil society) and official advisory boards to discuss issues related to international science and innovation policy with a focus on European issues.

However, their individual contributions and involvement do not necessarily imply their (or their organisation's) consent on the entire position paper, precluding them (and their organisation) from expressing divergent opinions in other papers or at other occasions.

The list of participating stakeholder organisations (WG1) is as follows:

KU Leuven, University of Antwerp (UAntwerpen), Ghent University (UGent), University of Brussels (VUB), Hasselt University (UHasselt), The Flemish Innovation and Enterprise Agency (VLAIO), Research Foundation Flanders (FWO), The Flemish Advisory Council for Innovation & Enterprise (VARIO), the Belgian industrial Research and Development (BiR&D), Liaison Agency Flanders-Europe (vleva), University College Vives (Viveshogeschool), University College Karel de Grote (Karel de GroteHogeschool), The Belgian Federation for Chemistry and Life Sciences in Flanders (essenscia vlaanderen), University College Ghent (HoGent), PXL University College (PXL Hogeschool), Artevelde University College (Artevelde Hogeschool), Interuniversity Micro-Electronics Centre (imec), Flemish Institute for Technological Research (VITO), The Flemish strategic research centre for the manufacturing industry (Flanders Make).

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