

RECOMMENDATIONS ON THE NEW RESEARCH POLICY (HORIZON EUROPE)

During its 13th meeting on 26 June 2018 in Brussels, the tripartite, independent High Level Group on Innovation Policy Management, set up following an initiative in the Competitiveness Council¹, continued to ‘think outside-the-box’ on how to improve innovation policy making.

The HLG on IPM is an open innovation approach between governments, business and academia, to inject innovative policy ideas into the EU system.² This time, it discussed the proposals for a new research policy, an important component of innovation, and European public sector innovation (see separate report).

Key recommendations

The increase in research and innovation funding proposed by the Commission is welcome and can have significant economic and social impact in Europe, if a number of conditions are fulfilled. Expectation creation, methods of delivery and evaluation must therefore go together.

The HLG recommends to fulfil four conceptual conditions:

- *overarching innovation must be the key priority,*
- *research must be seen as a tool for innovation,*
- *public sector innovation must bring more efficacy,*
- *to achieve this must be radical management innovation.*

Overarching innovation can be achieved through co-design with stakeholders to define missions with comprehensive social and economic impact. For reasons given below, the number of missions should be limited until sufficient managerial experience has been achieved.

Research is a way to achieve the missions’ goals provided that it is oriented towards innovation in markets and society in Europe. Research supported by European (and national) public funds should be commercialised. This requires to give also a crucial role to adjacent policies to facilitate market access.

The complexity of policy making in the EU governance system at a time of radical technological and economic shifts requires radical public sector innovation in the EU institutions.

The Commission should move rapidly and consistently towards management inspired by the private sector and by countries with top ranking for innovation and competitiveness.

¹ Council of the EU, 5-6 December 2011, Presidency Note.

² Members participate in their personal capacity. All recommendations for action and all ideas for further consideration have not always been agreed on by all members, but this advice is based on a very wide consensus.

And five operational conditions need to be fulfilled too:

- *A legalistic-bureaucratic culture and methodology must be replaced by agile, outcome focussed management, defining appropriate processes for different sectors and for different missions, and with clearly defined outcomes, modern management and timely evaluation.*
- *Another key for delivery is to ensure complementarity between FP9 and the various EU financial funding mechanisms available (in particular the large structural and agricultural funds), keeping in mind the missions' objectives.*
- *Complementarity between funding instruments and actual sectoral or horizontal policies implies that the investment of public funds cannot be done in isolation from the adequate policy and regulatory frameworks, because of the risk that innovation potential generated by FP9 will not, or cannot, be picked up. Other sectoral policies determine the demand-side conditions for innovation and their uptake.*
- *The current better regulation policy is a too narrow concept for this purpose and requires a fundamental redesign. A key role should be given to the Innovation Task Force, which should, together bodies such as the Innovation Council, EIT, JRC and similar ones, and independent external advice, steer its redesign.*
- *Missions require to think in entire ecosystems and thus to organise a multi-stage and multi-stakeholder process in defining them; to use existing basic research but also to launch new one where needed, in addition to funding applied research; to include push from key enabling technologies; and to give each of them strong leadership, experienced in innovation management.*
- *Therefore, one must ensure effective conceptual and operational inter-action and complementarity between different directorates-general, and between EU and national innovation policies. This requires open innovation platforms between them. It will be impossible to achieve this without deep public sector innovation.*

Specific recommendations

Clarify the respective roles of research and innovation

There still appears a lack of clarity about the value chain from research to innovation. Research takes place in (public or private) research centres, innovation happens in the market (even if the boundaries between research, innovation and use are increasingly blurring). Research centres do not have the tools and culture to search for citizens or markets and they are overall not well equipped to deal with innovation in markets.

The transformation from research results into marketable products or services and societal improvements does not happen by divine hand, but by Commission and governments creating together the

right framework conditions.³ This value chain is insufficiently dealt with in Horizon Europe. Between the fine words one senses path dependent thinking and the tyranny of legal competences.

Added value in economy and society can be created only through research and innovation based methods of open innovation and co-creation and policy coherence from inception to implementation; by repairing the fracture points in the policy making system and managing complementarity between EU and national research funds and innovation policies (including those not primarily targeted at innovation but which can have de facto an impact); and by radically innovative regulatory architectures and capital allocation, to name but the most important.

Co-design missions and give them independent ambassadors

The mission oriented approach is a welcome development of the original Horizon 2020 concepts.

To avoid future disappointments, missions require to think and to operate in ecosystems, to realize real public management innovation, to provide flexible used financial resources based on clear cost-benefit analysis and a given time frame.

Though important, not only the demand side should determine choices when designing missions. After all, the budget is small compared with research budgets of large corporations. A policy of stimulating key enabling technologies and of creating the appropriate policy and regulatory architectures must be complementary, in order to have real effects on competitiveness. There are useful experiences in Germany, Netherlands, Finland and a few other countries to be inspired by, and with the EIT (KICs).

Think outside-the-box

Missions must respond to grand challenges and set long term directions (in some cases beyond the 7 year cycle) for mutual interests across short term dividing lines. They can help to design agile, anticipatory policies.

From an economic perspective, the Commission would be right to include future communication infrastructures (more innovative and more comprehensive than clean transport), or ecological resilience (more inclusive than circular economy), but citizens will most probably favour missions on public health (including key issues such as age related, chronic or communicable related diseases, or anti-microbial resistance) and education (for the jobs in the digital age).

³ Bodo Hombach & Alexander Schweitzer, Für ein neue Balance zwischen wirtschaftlicher Stärke und sozialer Vernunft, 2015

Whatever the outcome of the national consultation processes to be launched, missions should not be confused with projects. Missions thus require broader knowledge inputs than projects, which are only the operational parts. Missions are about innovation which are about generating benefits and knowledge. This must be addressed clearly. It is not typically available in university research, but business does it all the time to remain competitive, hence the role of the ambassadors. Thinking must focus on generating benefits in society, on the social and ecological impact. Once the Commission fully embeds this, output legitimacy will return.

Nominate mission ambassadors

To monitor the mission process and to focus on delivery, the Commission could appoint 'independent ambassadors'. Ambassadors should be former CEO's with time to supervise and to organize the interactions research-business. They can bring the necessary (European and global) market knowledge. They should be co-responsible for transferring knowledge and research into economic and social benefits. They must help frame creativity and focus on delivery at all times. They could also assist the Innovation Task Force to advise on better, future oriented, technology neutral regulatory innovation related to the delivery of the mission objectives.

Ideally, given the diversity of Europe and the inherent complexity of the mission approach, there should be for each mission a troika, composed of CEOs and of a former high ranking official as mission ambassador. See also under 'innovate mission management'.

Use real open innovation and co-design

The political announcement said that the missions will be co-designed. How to move from words to action? Co-design requires: operating across scientific disciplines, innovative buy-in processes, effective cooperation across legalistic boundaries and mental silos, and more focus on design thinking and experimenting instead of roadmap thinking. It requires to start with a blank sheet, for example in hearings with multiple and diverse stakeholders present, to define needs and objectives. Internal and external knowledge must be combined, precisely because it can (and must) upset the established internal cognitive patterns. Problem definition is key: a failed problem definition will lead to failed outcomes.

A multi-tier governance system such as the EU needs multi-tier, consultation and dialogue mechanisms and needs to plug into the real concerns of citizens about economic (industry 4.0, agriculture 4.0) and sociological developments (such as rising urban-rural discrepancies, health and pension worries, employment). Therefore the EU must learn from best practices in public consultation and dialogue systems in Member States (for example Netherlands, Finland, Sweden).

Digital technology makes it entirely possible today to start with identifying citizens' hopes and wishes by using new technologies to streamline tens of thousands of replies into a number of key areas, which can then be further refined to relevant policy options.⁴ Civic societies of the Member States are not truly represented by civic society organisations operating in Brussels, one must reach the people where they live their daily lives. Business associations also offer mostly a lowest common denominator input, whereas hearings with leading innovators could bring deeper insights in the potential development of various economic sectors and in their interdependence.

Therefore, the role of the High Level Group of Innovators should be widened from its current technological focus. Its recommendations (summarised as F.A.S.T.) though should be a full part of the implementation FP 9 because they are a good step towards creating the framework conditions for innovation ecosystems. If not, an alternative should be set up.

Take into account sociological realities

Democratic legitimacy must be ensured through some form of consultation with national parliaments, (for example with rapporteurs or key committees) which still are the politically most representative institutions of the social and economic realities of the Member States. Moreover, national parliaments decide their country's budget, including national R&D funding.

Such consultation will contribute much to achieve better complementarity with national research and innovation policies, and between them. In a Single Market benefits of innovation are automatically shared; business, the main implementers of innovation, have long shifted their thinking in line with the Single Market, it is time that national policy thinking integrates this economic reality fully.

The proposed consultation could in turn stimulate the many Member States which are lagging behind in designing national innovation ecosystems to catch up; this would help to remedy the socio-economic fault lines in the EU, with potential dire effects for the Single Market and political stability.⁵

Moving towards complementary of research-mission-management

There are clear criteria to which traditional missions focussed on technology need to respond.⁶ However, for broader systemic missions such clear targets cannot be defined upfront. A mission is a broad objective which allows to activate a number of actors across (public and private) sectors, combining public policy goals and business interests. It should have a strong political and economic push and pull.

⁴ For example in the Netherlands, National Science Policy surveys organised by the Ministry of Education, Culture and Science.

⁵ John Spirngford, Simon Tilford, Populism, economics or culture ? Centre for European Reform, 2017.

⁶ Marianna Mazzucato, Mission-oriented research & innovation in the EU, 2018.

Talking about missions, many people have in mind grand projects like the Eurotunnel or Galileo. Horizon 2020 societal missions are fundamentally different because they are not linear but multi-dimensional and multi-disciplinary, they cannot be achieved by one or a few actors but they require collaboration between a wide variety of public and private actors. This creates a double need.

Ensure better complementarity of EU tools

Missions will promote systemic innovation, economic growth and wide societal benefits, if they focus on managing the complexity of interaction of science and technology, socio-economic and political interests. It is important that progress towards the mission's goal is regularly evaluated over and above the evaluation of individual projects.

Missions must overcome path dependency and silo thinking, because they must start from objectives and then move to the required funding, methods, relevant policies and regulations, forcing adaptation where necessary to achieve the objectives. Missions require steering more like orchestrating the various actions and actors needed to achieve the goals set.

The Commission should therefore fundamentally re-think the role of all 'own' research bodies (such as LERU, EARTO etc.) and networks and seek better complementarity. Also independent 'free thinkers' would be a very useful tool for co-designing innovative implementation pathways for FP9, involving them from the start (for example for the stakeholder mapping) till at least the mission definition of objectives. Breakthrough innovation starts with breakthrough policy.

Rather than looking to the linear models of the past, the Commission should put therefore research into management innovation higher on its agenda. New challenges, such as climate change, cybersecurity, or rapid, cross-sector technological innovations cannot be governed in the old ways.

Innovate public management

These new missions require agile governance, because of the high uncertainties, and the need to make continuous adjustments within given resources in order to reach the objectives.

Lessons from the past tell that more European research money will not automatically lead to more innovation in Europe. Traditional project management methods, as applied in academic research and by governments or Commission, are the cause. Heavy procedure, often politicised and not market oriented, fixes objectives and resources; there is no or insufficient accompanying evaluation and even when no tangible results are in sight, they may continue simply because they respond correctly administrative procedure and/or to political.

The real challenge consists of harmonising research and innovation policy with framework conditions, which are often defined by sector policies, or – in the case of new areas or value chains – require new demarcations (e.g. industry 4.0 is more than just traditional industrial policy, circular economy policy is more than traditional environment policy).

A EU innovation ecosystems approach also needs to overcome the current fragmentation of efforts within the EU Commission and between the EU and the Member States and stimulates multilateral, multi-stakeholder collaboration.⁷ Some Member States, those at the top of innovation and competitiveness rankings, have shown that it can be done. The lack of efficacy today results in part from inadaptation of public management, in part from the rigidity imposed by the Treaties and from Member States decisions. Together they weaken the output legitimacy on which the EU has always been based.

Mission management requires to move away from centralised towards decentralised management, from prescriptive project outcomes to creation of experimental spaces, from hierarchical focus on regulation and control of information and performance towards decentralised, collaborative problem solving.⁸

This requires a significant investment in executive development (for leadership and management) to solve both the cognitive and behavioural hurdles in the Commission. Its unreformed and static human resources policy, its rigid working structure and procedures are big obstacles for a new approach to research policy (and not only there). Therefore, the Innovation Principle Task Force should be given a transversal push role to speed up a change in mind-set; it should operate directly under the director general and not be confused with better regulation, which is just one outcome of it. The successful output of FP 9 will depend on in-house innovation.

Research focussed on societal challenges and industrial competitiveness will be incomplete without researching in parallel how the results could be implemented. Too many publicly funded research projects only lead to a publication read only by other experts or a patent not used productively. An important role for the mission ambassadors.

Innovate mission management

The suggested supervisory troika of ambassadors needs to be complemented with a mission supervisory board, which is independent from the actual management of the various programs or projects to realize the mission objectives. They should have authority to make adjustments; if significant, they will need political validation by the Commission Vice-President under whose authority the mission belongs.

The missions needs clear milestones and measurement of success. The key success factors must be validated upfront, before starting the work. They should include the objectives to be achieved, the management method, the troika of ambassadors and the mission board, the budget (and a reserve budget).

⁷ HLG on Innovation Policy Management, Report on Ecosystems, 2013 (www.highlevelgroup.eu)

⁸ Tim Blackman, Complexity theory and new public management, Social Issue, vol 1, no 2, 2001

When achieving a milestone, there must be a proper assessment, in line with the conditions of success. If necessary objectives need to be amended, but public money should not be spend until there is no chance of result anymore: everyone sensible person understand the complexity of these efforts and the inevitable risks involved.

In each mission, value generation for Europe's economy and society must be included upfront through market research, focus groups, data analysis on social media, stakeholder consultations, foresight and impact assessment studies, scenario planning, etc. It must be noted that not all stakeholders are automatically capable to engage constructively, and that some form of preparation (collective executive development) may be needed, using experiences (case studies) from the public and private sector.

For all these reasons, an experimental pilot mission is advisable.

Include framework conditions

Governments need to be involved also to manage collateral (adjacent) policies to achieve the missions' goals. Many framework conditions for research results to reach the market rapidly are not in place and many obstacles remain. An redesigned Innovation Council (in the form of an open, flexible platform), or a sort of Innovation Policy Advisory Board, chaired by a Vice-President, should be given a role to identify these issues, such as education, labour market functioning, venture capital, taxation and others.⁹

It should also assist in defining criteria for responsible innovation, in line with the work done by the World Business Council on Sustainable Development and the EU's own Responsible Research and Innovation Principles.

An Innovation Council (as proposed in the report mentioned) could also play a useful advisory role on possibly needed future regulatory frameworks. This would bring FP9 closer to the deep shifts taking place at the moment, such as the move away from functionalism to a focus on social goals and the widened influence of intangibles in policy demands.¹⁰

Facilitate open innovation and cooperation

Cooperation between the public and private sector and scientific centres is necessary to increase the impact of research findings and to help to smooth the way to market. Open innovation networks have proven to be the modern way to develop excellence and to lead to many incremental or radical innovations. The public sector will normally concentrate on long term investments for breakthrough science and technology, the private sector on products and solutions for the market.

⁹ HLG on Innovation Policy Management, Report of Innovation Council, 2017 (www.highlevelgroup.eu)

¹⁰ Marc Dreyer et.al., Responsible Innovation, A practitioners' view on how to put it into practice, International Journal of Engineering Research and Management, 2018

The framework program must promote their cooperation to ensure maximum benefits of research investments. The model of innovation deals should be stimulated and made as often as possible part of research package deals. They must be continually adjusted; if one does not do this, the risk of failure is magnified.

This requires consultation and dialogue, assessment of tangible and intangible outcomes, openness to serendipity, modern project management based on corporate models and experience, and independent evaluation.

Again, it is therefore necessary to reduce the emphasis on procedure and to reduce of costs of project administration. And then to leave scientists themselves to develop the most appropriate pathways to achieve them. Often heard criticism about tiresome and complex administrative procedures (time-lines, data requirements, reporting etc.) must be taken seriously by the Commission.

Save money through complementarity, coherence and continuity

The mission oriented approach should also help to put an end to the waste of resources resulting from fragmentation in the EU and create more efficacious inter-actions between the various competences based administrative entities in Commission and in Member States. Looking at the context of a mission, including national experiences, will also help. The plans for co-funding of projects, without sacrificing the seal of excellence approach, should be realised without delay, and widened to include the future missions.

FP9 should provide funding for public sector innovation (in EU and Member States, complementing the work of OECD), for new consultation and dialogue mechanisms and for national ecosystem development in those Member States below the average on the EU Innovation Scoreboard, as well as ensuring complementarity with the Structural Funds, the CAP funds, and other European investments facilities and institutions (EIB).

Streamlining and simplifying the many EU funding programmes is another must. But the habit of officials to combine administrative rules into a new package should be firmly resisted; instead a measurable decrease of administrative burdens on researchers should be determined, following best practice of regulatory burden reduction in the Member States.¹¹

In particular the Structural and Agricultural Funds should have a deeper impact the development of innovation ecosystem approach and business-university cooperation in the below average countries. Therefore, a more collaborative steering should be elaborated between the relevant Commission DGs.

¹¹ For example, in the regulatory simplification program in the UK or the Kafka program in Belgium.

A really bold move would be to combine more (EU and Member States) funding in one (DARPA style) European agency, sufficiently independent and properly advised.

Evaluation must be improved. The EU launches too many new programs without evaluation what had been done or what is ongoing already. Once a program has been ended, there is often insufficient (independent) evaluation if and how the results could be used for further work; sometimes evaluation is completed after new initiative have been taken already; if the procedural requirements have been fulfilled, the file is too often closed.

The EU also has too many committees of all sorts and it should seek a simplification of roles, while also ensuring a more diverse composition to stimulate path independent advice. Committees covering overlapping policy areas could be co-chaired to overcome dominant silo approach. It would be very useful to demand an external audit to examine overlap and duplication and to advise on simplification and efficacy.

Take the whole research & innovation value chain into account

There are two aspects of importance which need to be taken more fully into account.

One is the complementarity of research investments with IPR and standardization policies. Both are an important element of competitiveness. Public-private research collaboration are very useful to achieve breakthrough innovation (in communication or health for example). Yet patents, the compensation for significant R&D investments with a public benefit, are not always sufficiently protected. Instead of seeking innovative ways to solve certain collateral effects (such as costs of medicines), there is a trend to weaken IP which will ultimately drive innovation away.¹² This should be resisted, all the more so because, due to the cross-fertilisation of sciences, this can have repercussions even beyond the original field (cybersecurity research depends for example on communication technology).

The other is financing of experimental phases and early market access. Often, the roll-out of innovative products in the market has high capital and operational costs. Complementarity between policies can help to reduce this, for example by ensuring technology neutrality of policies and adaptation to (perhaps disruptive) innovation. But it may equally be useful in cases where the government is (co-) funding innovation through public procurement to consider innovative ways of funding or accounting because of the often high upfront costs at the beginning; savings later on will benefit society and public budgets as a whole. Obviously, one has to be careful not to help the emergence of new monopolies, but the Commission has useful instruments for prevent this.

¹² Some UN SDGs agreements with business seem to better combine IPR and social concerns.

Increase connectivity with national innovation

Member States and Commission should seek to achieve complementarity, even harmonisation, of the important work of EUREKA with FP 9 and effective cooperation between instruments supporting innovation should be promoted. This would provide even more added value for Europe's economy and society.

The drive for excellence should remain, but less performing Member States need to be supported in a tailor made way. However, those which want to continue in the old ways should be left out. Flexible geometry has two effects: the willing move forward, the unwilling stay aside.

The EIC is a useful initiative which will facilitate linkages to the world of start-up and disruptive innovation. However, there is another need for policy makers, which is much broader: to connect with the innovation ecosystems of the Member States (or to help to develop them).

The EIC, or another such body, should become a truly innovative steward for multi-directional consultations and feedbacks, based on the quadruple helix concept. The EIC should be a new experiment on how to organise bottom-up and multi-stakeholder advice in the digital age, and not copy previous models.

This can be achieved by conceiving the EIC as an open digital milky way of inter-connected platforms involving multiple stakeholders and focussing on a variety of innovation developments. Each platform linked to the overarching EIC platform itself should have a quadruple core composition but with open access. The platform conveners should ensure open and fair exchanges.¹³

Allow only values based participants

The Copenhagen Principles are an integral part of the EU legal framework and the Commission has repeatedly stressed their importance. Horizon 2020 has a strong societal orientation. The EU should therefore introduce a value demands for those who want to benefit from public research money.

To take part in FP 9 programs, all participants from the public or private sector, from inside or outside the EU, should adhere to the UN SDGs and UN-Global Compact with its set of ten principles on human rights, labour and environment. Or the EU should develop its own codex, based on these UN ones and the Copenhagen Criteria. As an example, the independent Wittenberg Centre for Global Ethics has developed one in Germany which has been subscribed by many corporations. Other participants, such as universities and research centres should subscribe equally to it.

¹³ See HLG on Innovation Policy Management, Report on Innovation Council 2017 (www.highlevelgroup.eu)